THE WOOD INDUSTRY IN ATLANTIC CANADA:

A Focus on Value-Added

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ATLANTIC CANADA OPPORTUNITIES AGENCY *NOVEMBER 1998*

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INTRODUCTION

This paper is the first in a six-part series prepared by the Atlantic Canada Opportunities Agency (ACOA) in consultation with the governments of the four Atlantic provinces on the economic benefits and opportunities that exist in the value-added wood products industry in the Atlantic provinces. While maintaining a focus on the value-added aspects of this sector, the series will examine the following aspects of the industry: State of the Resource; State of the Industry; Productivity and Economic Benefits; Products and Markets; Trade and Regulation; and Needs, Challenges and Targets.

An analysis of the state of the forest resource in Atlantic Canada is needed to determine if there are any further possibilities of utilizing resources in the region for value-added products, or if the wood products industry should start exploring world markets for additional wood resources. The information on the state of the resource was based on the work of Derek MacFarlane at the Canadian Forest Service-Atlantic Forestry Center under Natural Resources Canada.

SUMMARY

Private land ownership is significantly higher in the Maritime provinces than it is in the rest of Canada, ranging from 52% in New Brunswick to 92% on Prince Edward Island. In Newfoundland, 98% of forest land belongs to the provincial government. Productive forest land accounts for 65% of forest land in Atlantic Canada and 97% in the Maritime provinces. Based on a 1991 inventory, there are 1.4 billion m^3 of wood growing on productive forest land, with softwoods accounting for 76% of Atlantic Canada's forests and the remaining 24% being hardwoods. The age-class structures in New Brunswick, Nova Scotia and Prince Edward Island are a concern at the regeneration level. In Newfoundland, there is an extremely low percentage of trees at the intermediate level. In 1995, the total Annual Allowable Cut (AAC) for the Atlantic provinces was almost 20 million m^3, approximately 10% of the national total. Although total harvests, including softwood and hardwood, are below total AAC for the Atlantic provinces, softwood harvests in 1994 and 1995 were well above the AAC for softwood in Atlantic Canada.

CONCLUSIONS

Harvesting is approaching maximum levels in the Atlantic provinces, especially in the case of softwood. Given the current level of harvesting in the Atlantic region, sustained growth in Atlantic Canada's wood industries will rely on access to external fibre sources and better use of existing fibre source. However, as many value-added manufacturers in the region import wood resources from outside the region, the health of the value-added wood industry is not completely dependant on the sustainability of the forest resource in the Atlantic region.

PART 1

STATE OF THE RESOURCE

1. AREA OF PRODUCTIVE LAND BASE

Productive Forest Land is defined as the "Forest Land that is capable of producing a merchantable stand within a reasonable length of time".[1] With over 21.2 million ha of productive forest land, 65% of forest land in Atlantic Canada is considered to be productive. However, when Newfoundland is isolated from the other three provinces, 97% of the forest land in the Maritime provinces is considered to be productive. This compares favorably to national figures which show that total forest land in Canada is estimated at 417.6 million ha and that timber-productive land accounts for 58.6% or 244.6 million ha of the total national forest land. There are two conclusions that we can draw from these figures:

(1) Productive forest land in Atlantic Canada accounts for only 8.7% of productive forest land in Canada.

(2) The percentage of productive forest land in Atlantic Canada is slighter higher than the national rate. However, the proportion of productive forest land in the three Maritime provinces is almost twice the national rate. **(SEE APPENDIX A)**

Further study would be needed to identify vulnerabilities and efficiencies that result from the relatively small area of forest land in Atlantic Canada and the high proportion of productive forest land in the Maritime provinces.

2. INVENTORY OF THE VOLUME OF WOOD

Based on a 1991 inventory, the volume of wood growing on productive forest land in Atlantic Canada is over 1.4 billion m^3. At 102 m^3/ha, the yield for the Maritime provinces is higher than the yield for Newfoundland which is 88 m^3/ha. As seen in Table 1, softwood is the dominant species in the Atlantic region with 76% of the volume. Spruce and fir constitute 66% of softwood. The balance is made up of hardwoods, such as maple, birch and poplar. Maple is the most abundant of the hardwoods.

A 1997 study commissioned by the Centre for Advanced Wood Processing found the following distribution of wood production in New Brunswick and Nova Scotia sawmills:

- Spruce-Pine-Fir: 93.3%
- Red & White Pine: 5.3%
- Hemlock: 0.8%
- Cedar: 0.4%
- Tamarack: 0.14%
- Aspen/poplar: 0.3%
- Hardwoods: 0.13%

In Canada, the percentage of softwood and mixed wood is 85%, while hardwood accounts for the balance of 15%.[2] While the percentage of hardwood in the Atlantic region is higher than the national level, woodlot owners and logging contractors have complained that quality hardwood in the Atlantic region does not often occur in sufficient quantities to make transport and transformation economical. This may be one of the reasons that hardwood continues to be cut at levels well below the AAC.

The company Groupe Savoie Inc., located in northern New Brunswick, has a total allocation of approximately 72,000 m^3 that it uses to produce hardwood pallets and components. The company, which employs about 310 people, will start producing a new type of flooring that will be destined for the European markets. The company has also started Pallets Plus in Moncton to refurbish used pallets.

TABLE 1

Species Distribution in the Atlantic Region [3]
(000 000 m^3)

Species	Nfld.	P.E.I.	N.S.	N.B. *	Atlantic
Softwood	488 (93%)	16 (62%)	153 (60%)	391 (68%)	1,048 (76%)
Hardwood	39 (7%)	10 (38%)	101 (40%)	187 (32%)	337 (24%)
Total	527 (100%)	26 (100%)	254 (100%)	578 (100%)	1,385 (100%)

* Figures from New Brunswick have been adjusted by the New Brunswick Department of Natural Resources and Energy and represent 1986 inventory.

3. AGE CLASS OF TREES

In **New Brunswick**, the present-day industry is benefitting from an age-class structure which has 48% of trees in the mature to overmature categories. However, only 8.8% are in regeneration, a rate which is quite low for the future prospects of the industry.

The harvesting levels for each age class will have a considerable impact on the sustainability of the resource. A 1983 report to the New Brunswick government illustrated the unevenness of the age-class structure in New Brunswick's forests. It recommended that the old forests which would die naturally be harvested first in order to allow regeneration and silviculture efforts to take effect.[4]

Prince Edward Island faces a situation where large tracts of wood (mainly spruce) are mature/overmature and begin to deteriorate at age 50. There are 17.2% of short-lived trees and only 10.5% of long-lived trees in regeneration. The immature category is more promising with 31% of short-lived and 33.5% of long-lived trees. The mature category is the strongest with 37.3% of short-lived and over half of long-lived. Almost 15% of short-lived trees are overmature.[5]

Nova Scotia finds itself in a similar situation as New Brunswick and Prince Edward Island, with only 12% of its trees in regeneration. Again, this will have a negative impact on the long-term prospects of the forest resource in the province. The main difference with New Brunswick is Nova Scotia's low percentage in the mature class, a situation which is presently causing concern in the industry. The medium term holds the most promise for Nova Scotia's forest industry, given that 75% of trees in Nova Scotia are in the immature age class.

Newfoundland is also in a difficult position for the next 20 years. The *20 Year Forestry Development Plan 1996-2015* for Newfoundland estimates the 1995 age-class structure in Newfoundland and Labrador to be as follows:

- Immature stands (Age 1-40): 40% of productive timber
- **Intermediate forest (Age 40 to 60): 12%**
- Mature to overmature (Age 60+): 48%

The following aspects of forest management should also be considered in developing a complete assessment of the status of the Atlantic region's forests:

- Forest Management objectives
- Different types of woodlot organizations
- Licensing/Certification
- Replanting
- Forestry management expenditures
- Environmental protection regulations:
  - protected areas
  - endangered species

The extemely low percentage of intermediate age class in Newfoundland is a major constraint on the Annual Allowable Cut. In other words, the old forest is being harvested too fast for the intermediate forest to sustain current levels of harvesting. On a more positive note, the strong percentage of trees in regeneration (28%) gives good prospect for beyond the next 20-year period. **(SEE APPENDIX B)**

4. LAND OWNERSHIP

There is an exceptionally high level of private woodlot ownership in the Atlantic provinces, with the exception of Newfoundland where 98% of forest land belongs to the provincial government. It is more realistic to look at ownership in the three Maritime provinces where the level of private industrial and non-industrial ownership ranges between 52% in New Brunswick to 92% in Prince Edward Island.

The high level of private ownership has been a significant factor in allowing the Maritime provinces to be exempt from the tariffs and quotas of the Bilateral Softwood Lumber Agreement between Canada and the United States.

Compared to the rest of Canada, the Maritimes are in a unique position in terms of forest management. In all of Canada, private land ownership accounts for only 6% of the forest land, with the provincial governments owning 71% and the federal government 23%. In light of this reality, forest management cannot be administered in the Maritime provinces as it is in the rest of the country. **(SEE APPENDIX C)**

5. STUMPAGE CHARGES AND ALLOCATION OF CROWN LANDS

In 1995, Newfoundland had the lowest stumpage charges in the Atlantic region at only $2.38/m^3$. On average and excluding charges for fuelwood, stumpage rates in New Brunswick are slightly lower than in Nova Scotia, with an average charge of $9.01/m^3$ compared to $9.89/m^3$, respectively. Differences are more pronounced in softwood than in hardwood, due most likely to the relative scarcity of softwood and the relative abundance of hardwood in the region. The Province of Quebec has an average fee of $7.17/m^3$, while Ontario's fees range between $5.15/m^3$ to $6.10/m^3$. British Columbia has among the highest stumpage rates in the country with an average of $22.06/m^3$, although they have been substantially reduced in 1997 and 1998. **(SEE APPENDIX D)** In New Brunswick, management of provincial Crown lands is assigned to major pulp and paper mills located in the province as long as they remain sustainably managed. In Nova Scotia, two large pulp and paper companies hold long-term licence agreements to almost three quarters of Crown forest land in the province. **(SEE APPENDIX E)**

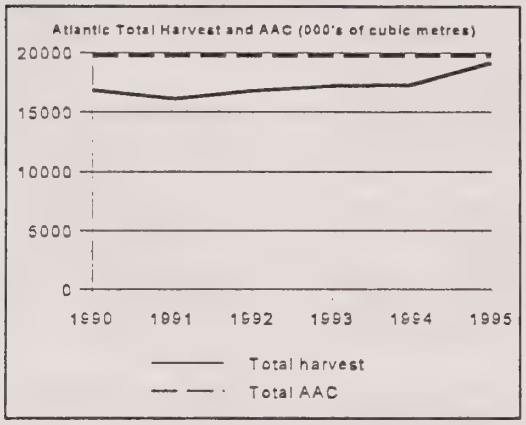
6. WOOD PRODUCTION

In 1995, the total Annual Allowable Cut for the Atlantic provinces was almost 20 million m^3, approximately 10% of the national total. Softwood represents 13.8 million m^3 or 70% of AAC, while hardwood represents 5.85 million m^3 or 30%. New Brunswick and Nova Scotia account for 81% of Atlantic AAC.

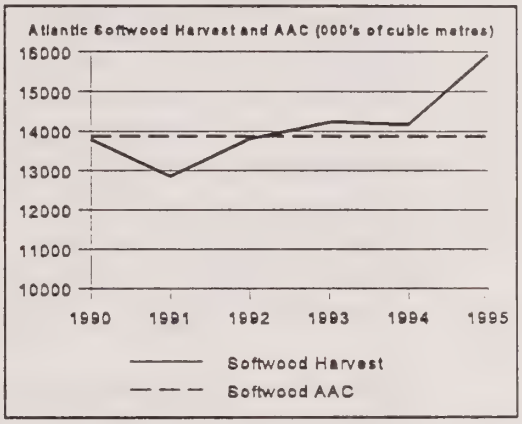
The Annual Allowable Cut (AAC) is used in this report because it is the measure employed by provincial governments to determine the volume of timber that forest companies are permitted to harvest annually from a particular area over a specified period of time.

In 1995, Canada's AAC was 232.9 million m^3, while harvest volumes were approximately 183 million m^3. In that same year, British Columbia's harvest accounted for 40.7% of national volume. **(SEE APPENDIX F)**

GRAPHIC 1



GRAPHIC 2



AAC is determined in part by past harvesting levels, the availability of wood and silvicultured practices. Effective silviculture can increase AAC by as much as 25-30%.

As seen in Graphics 1 and 2, surpluses for the Atlantic region were all quite high between 1990 and 1994 and were equal to or above 2 million m^3. However, there was a dramatic decrease in both Atlantic total and Atlantic Softwood surpluses between 1994 and 1995 from about 2 million to just above 500,000 m^3. The total surplus for the Atlantic region is deceptive for two reasons:

(1) They combine total Atlantic deficits and surpluses for softwood and hardwood. For the Atlantic region, there has been a deficit in softwood for 1993, 1994 and 1995. From 1994 to 1995, the deficit increased dramatically from 290,000 m^3 to

2,094,000 m^3. The situation becomes even more critical if Newfoundland and Labrador is removed from the equation. In the Maritime provinces alone, there was a deficit in softwood from 1990 to 1995, with the deficit more than doubling between 1994 and 1995. However, when the hardwood surplus is added, the softwood deficit disappears; and

(2) Large volumes of wood from private woodlots in Nova Scotia and Prince Edward Island are not being captured in the harvest levels used to calculate AAC.

Is the volume of wood leaving private woodlots large enough to affect the AAC calculation?

Newfoundland: For the foreseeable future, a deficit is predicted for insular Newfoundland due to unbalanced age class. "Softwood requirements for commercial production into pulpwood, sawlogs and fuelwood are projected to exceed total allowable cut by 595,000 m^3."[6] The newsprint industry faces a deficit of 239,000 m^3, while sawlog supply for sawmills faces an annual deficit of 356,000 m^3. These deficits apply to all user groups but are most pronounced in central and western Newfoundland. The sawmill industry is facing increasing competition for logs from the pulp and paper industry and from demand for firewood. In fact, the *20 Year Forestry Development Plan 1996-2015* for Newfoundland estimates that the sawmill industry imports approximately "65% of its raw material (high quality hardwoods, kiln dried softwoods, and panels) and manufactures high value-added products".[7]

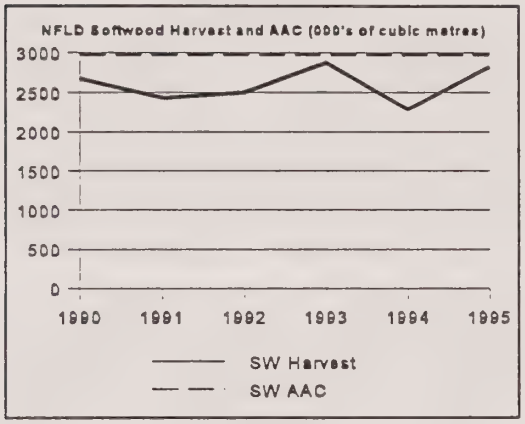
Don Wells owns Welco Ventures Limited in Cormack, Nfld., near Deer Lake. The company's sawmill has tripled its production since it began operations in 1995. Trucks haul wood from up to 300 km away on insular Nfld., while other wood comes from the Maritimes and more recently from Labrador. Welco is now one of the province's largest producers of fir studwood. By 1997, the company's output reached 4.2 million board feet, confirming its position as one of only 15 mills in the province that produces more than 500,000 board feet of lumber annually.[8]

"There were approximately 3.0 million m^3 of timber harvested throughout the province (of Newfoundland) during the 1993/1994 fiscal year. Timber production is classified by end-use (i.e., final product). About 72% of the total timber harvested was used within the province as raw material in the manufacture of newsprint, sawn lumber, and construction timbers. The remaining 28% was burned locally as fuel. Sawlogs used in secondary manufacturing accounted for 9.6% (288,000 m^3) of all timber harvested in 1993/1994."[9] In their 1995 report to the Newfoundland government, Ati Consultants recommended a best-use policy for sawmills, pulp and paper and fuelwood that would focus on maximizing economic benefits to the provincial economy.

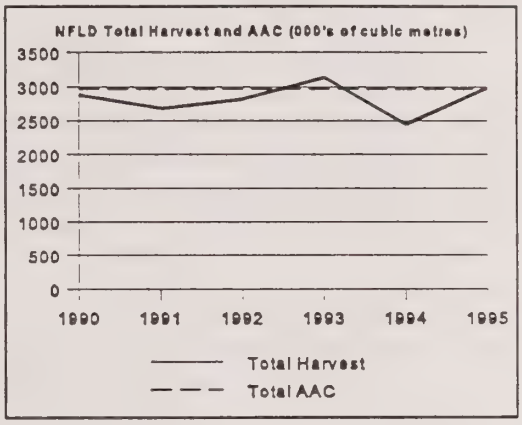
Supply from Labrador is being examined; however, transportation costs could prove to be prohibitive. Wood imports have increased over the years to complement the demand, and will probably continue to increase over the forecasted deficit period. Outlook beyond the next 20 years is more favorable, due to forecasted increases resulting from silviculture. Graphics 3 and 4 illustrate the particular situation of Newfoundland and Labrador. As opposed to the other Atlantic provinces, there was a moderate surplus in softwood from 1990 to 1995. The total deficit came from the "deficit" incurred in hardwood harvesting since there is no official hardwood AAC.

The estimated AAC from the Labrador region is 580,000 m^3, approximately 20% of the province's AAC. As there is no existing industry large enough to utilize this entire supply, there appears to be an opportunity to offset Island pulpwood deficits. The estimated drain on the Labrador AAC is only 100,000 m^3 which suggests a surplus of 480,000 m^3/year.[10]

GRAPHIC 3

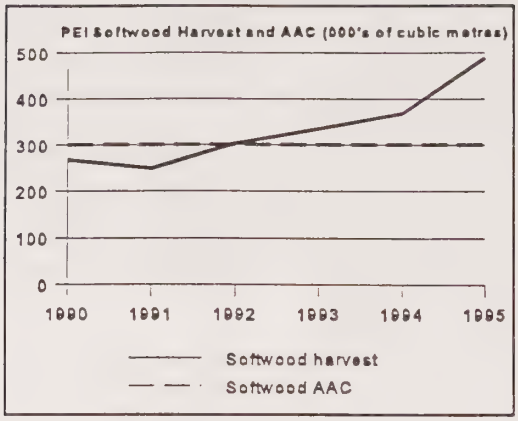


GRAPHIC 4

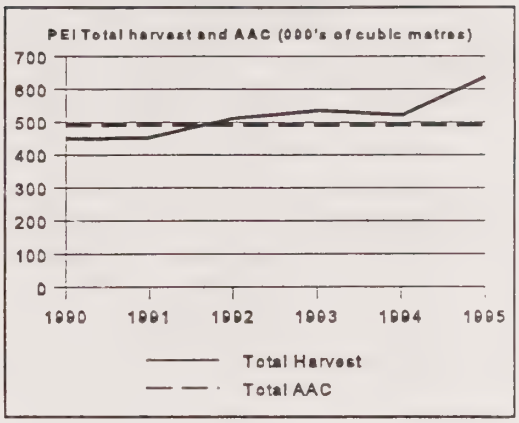


Prince Edward Island: Over 90% of forest land in P.E.I. is owned by over 12,000 private woodlot-owners. Demand for hardwood is mainly driven by fuelwood demand rather than for value-added products, such as hardwood floors or furniture components. In 1997, almost 20% of total wood was used for fuelwood. Although there are no pulp and paper mills on P.E.I., approximately 40% of hardwoods and softwoods left the Island in 1997 for sawmills and pulp and paper mills in New Brunswick, Nova Scotia, Newfoundland, Quebec and Maine. In 1997, slightly more than 40% of wood was used on Prince Edward Island for sawlogs, energy chips and other miscellaneous purposes.[11] Training and education for private woodlot owners have been identified as major issues for the future of the forest resource on P.E.I. A silviculture fund was established on the Island through a check-off on mill-delivered components. As illustrated in Graphics 5 and 6, there was a large deficit in softwood harvesting from 1992 to 1995, as well as in total harvesting.

GRAPHIC 5



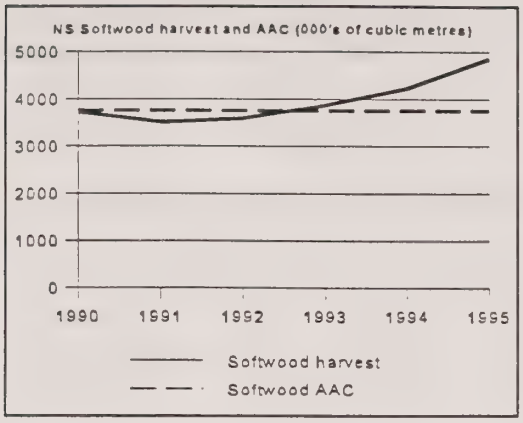
GRAPHIC 6



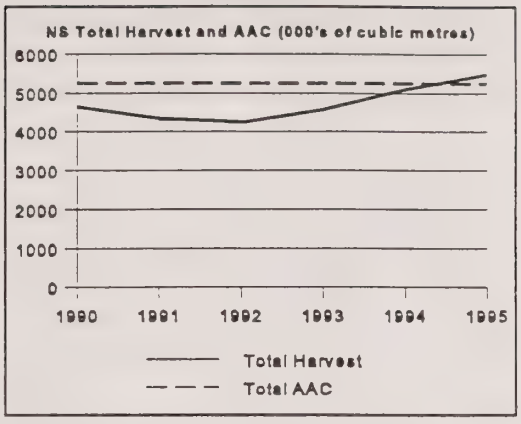
Nova Scotia: As seen in Graphics 7 and 8, while total harvest levels are below AAC, the softwood deficit in Nova Scotia is the highest in the Atlantic region. From 1994 to 1995, the deficit more than doubled. From 1990 to 1995, there was a total harvest of 2.1 million m^3 over the Annual Allowable Cut. However, the actual deficit may be higher due to the high level of private ownership in the province and the difficulty of monitoring shipments from these properties. The hardwood surplus has steadily increased over the years from 575,000 m^3 to 875,000 m^3.

The provincial government of Nova Scotia announced in January 1998 a Registry of Buyers of Primary Forest Products. The registry is targeted for "individuals and businesses who acquire primary forest products for processing into secondary products, export, sale as firewood or production of energy".[12] The information collected will be used to provide reliable statistics, to provide the public with a better understanding of woodland use, to prepare reports and national documents and to develop effective forest management policy.

GRAPHIC 7



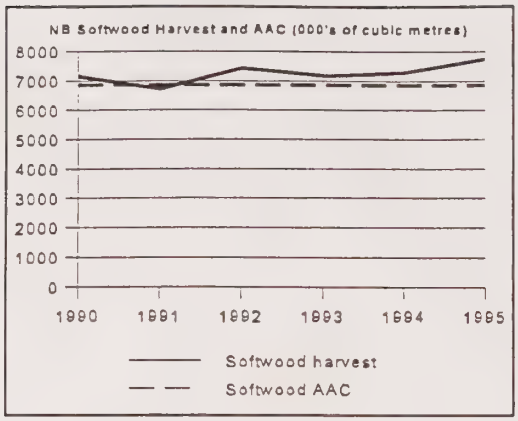
GRAPHIC 8



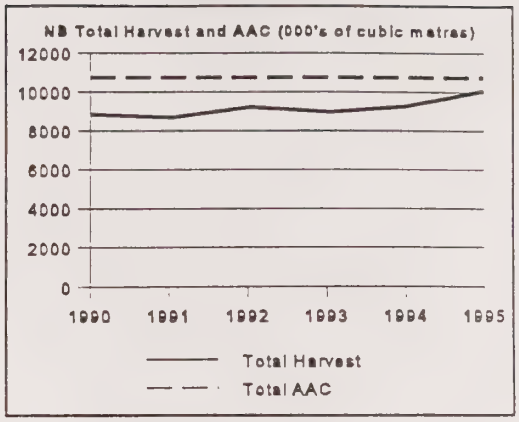
New Brunswick: New Brunswick has the same problem as Nova Scotia in that there has been a constant softwood deficit from 1990 to 1995, a situation which is reflected in Graphics 9 and 10. The problem in New Brunswick, however, is not quite as critical as in Nova Scotia. With softwood harvests and AAC at roughly double those of Nova Scotia, the softwood deficits in New Brunswick are slightly less, in absolute terms, than those in the neighboring province. Softwood deficits are still masked in provincial totals by the significant annual surpluses in hardwood harvesting. According to the New Brunswick Department of Natural Resources, forests in the province fuelled mill production with over 8 million m^3 of softwood and 2 million m^3 of hardwood in 1996-97. In early 1997, the provincial government started implementing its value-added strategy by shifting some resource allocations to more value-added establishments in order to improve the economic benefits of the forest resource.

The New Brunswick provincial government estimates that 40 communities depend totally on forestry for their livelihood and an additional 50 depend on forestry to a certain degree. The provincial government also estimates that there are 35,000 individuals who own private woodlots in New Brunswick.[13]

GRAPHIC 9



GRAPHIC 10



7. IMPORTS OF ROUNDWOOD

Although imports of round wood in the Atlantic region have declined from 558 690 m^3 to 483 650 m^3 over the 1992 to 1997 period, they represented between 2.5% and 4.4% of total wood production in Atlantic Canada during that period. Most imports went to New Brunswick, where imported round wood represented between 4.8% and 7.2% of total harvests in that province from 1992 to 1997. Newfoundland also had significant imports of wood in 1992 and 1994, representing 3.7% and 4% respectively. **(SEE APPENDIX G)**

8. ISSUES AND OPTIONS

Advantages: Strong and sustainable forests provide the forest industries with a relatively inexpensive raw material from which to work. The Atlantic forest industries, including the wood products sector, have benefitted from a combination of factors which include a high level of private ownership and competitive stumpage fees.

External Fibre Sources and Market Knowledge: Harvesting is approaching or exceeding sustainable maximum levels in the Atlantic provinces, especially in the case of softwood. However, the health of the value-added wood industry is not completely dependant on the health of the forest resource in the Atlantic region, since many secondary manufacturers in the region import wood resources from outside the region. Given the level of harvesting in the Atlantic region, sustained growth in Atlantic Canada's wood industries will rely on access to external fibre sources and better use of existing fibre source. As already stated, the Province of New Brunswick has started shifting resources from primary to secondary manufacturing. There may also be a need to look at stumpage charges as a means of controlling or redirecting allocation.

The Danish experience has demonstrated the ability for wood industries to develop without the advantage of a captive wood supply. Market research and market knowledge have been two factors which have contributed to the development of a strong value-added wood industry in Denmark. **(SEE APPENDIX H)**

Harvesting Technologies and Biotechnology: New and better forest technologies can also add value to the industry. Increased recovery of wood and improved sorting mechanisms add value by separating high quality and high demand wood from low quality, low demand wood. Similarly, smaller trees can now be processed and the use of non-traditional species, such as hardwood, has been facilitated.

Biotechnology is the application of scientific and biological principles for the alteration of substances by biological agents with the aim of providing better goods and services. In the Atlantic provinces, forestry biotechnology research is concentrated at the Canadian Forest Service - Atlantic Forestry Center and the University of New Brunswick.[14]

Challenges: Despite its advantages, the high level of private ownership in the Maritime provinces is a challenge on four main fronts: training and education of private woodlot owners; certification; silviculture; and wood flow monitoring. The issue of protected areas will also challenge governments in the Atlantic region to balance environmental concerns with those of the forest industry.

The Silviculture Youth Training Program was conducted in Newfoundland between 1990 and 1993 with the goal of certifying 300 new silviculture workers in the proper use of chainsaws, bushsaws and silviculture techniques.[15]

Another issue facing the forest industry in the region is the recent rulings by the courts of New Brunswick on the rights of Natives to cut wood on Crown lands. In late 1997, the Court of Queen's Bench ruled that Natives in the province could cut on Crown lands, but in April of 1998, the Court of Appeal overturned that decision. The Government of New Brunswick has reached interim harvesting agreements for 1998, with at least three First Nations: Tobigue, Burnt Church and Eel River Bar. Of particular interest to the wood products industry in New Brunswick is the loss of 5% of their Crown wood allocation to First Nations and whether or not wood cut by Natives will be sold to mills in the province.

The Eel Ground First Nation in New Brunswick has a history of activities that focus on improving the condition of their own forest resources. They include road construction, pre-commercial thinning, residual removal and reforestation.[16]

Some private woodlot and small sawmill owners would also be in a position to start their own value-added wood products manufacturing business. While such endeavors often require significant amounts of investment, there may be opportunities for enterprise development, increased job creation and higher income levels with a shift from raw production to the development of value-added wood products.

As President of Plancher Héritage Ltd. in Kedgwick, N.B., André Isabelle has managed his company's growth since it was set up more than 12 years ago. The company, which manufacturers Maple, Birch and Oak strip flooring, has a large customer base in Hong Kong. Plancher Héritage Ltd. was named 1997 Business of the Year by the New Brunswick Economic Council.

The New Brunswick policy framework for private woodlots recommends that the provincial income tax system be changed in order to encourage sustainable management on woodlots. Suggestions to this effect were also made in Prince Edward Island. Measures to enhance the sustainability of Atlantic Canada's forests could have a beneficial effect on the wood products exported from the region because of increased environmental pressures in European and American markets.

APPENDIX A

Area of Productive Land Base in the Atlantic Region [17] (Thousands of hectares)						
Class	**Nfld.**	**P.E.I.**	**N.S.**	**N.B. ***	**Atlantic**	**Maritime**
Productive Forest Land	11,271 (51% of forest land)	278 (95% of forest land)	3,767 (96% of forest land)	5,921 (97% of forest land)	21,237 (65% of forest land)	9,966 (97% of forest land)
Non-productive Forest Land	11,253	16	156	154	11,579	326
Total Forest Land	22,524 (61% of total land)	294 (52% of total land)	3,923 (74% of total land)	6,075 (85% of total land)	32,816 (66% of total land)	10,292 (80% of total land)
Non-Forest Land	14,645	272	1,361	999	17,277	2,632
Total Land	37,169	566	5,284	7,074	50,093	12,924

* New Brunswick figures were adjusted to reflect the province's 1986 Inventory Report.

APPENDIX B

Age Class of Trees in the Atlantic Region [18] (Thousands of hectares)						
Maturity Class	**Nfld.**	**P.E.I. ***		**N.S.**	**N.B. ****	**Atlantic**
		Short-lived	Long-lived			
Regeneration	2,866 (27.9%)	18.1	17.0	377 (11.5%)	437 (8.8%)	3,715.1 (19.8%)
Immature	699 (6.8%)	(17.2%)	(10.5%)	2,474 (75.5%)	2,138 (44.0%)	5,397.7 (28.8%)
Mature	943 (9.2%)	32.6	54.1	385 (11.7%)	2,195 (44.3%)	3,648.0 (19.4%)
Overmature	893 (8.7%)	(31.0%)	(33.5%)	4 (0.1%)	183 (3.7%)	1,099.8 (5.9%)
Uneven-aged		39.2	85.8	37 (1.1%)		37.0 (0.2%)
Unclassified	4,861 (47.4%)	(37.3%)	(53.2%)			4,861.0 (25.9%)
Total	10,262	15.3	4.5 (2.8%)	3,277	4,953	18,758.6
		(14.5%)				
			161.4			
		105.2				

* Prince Edward Island uses a different system of age classification than all other provinces in Canada because of the unique nature of its forests. The ages are based on the 1990 Forest Biomass Inventory. Maturity is based on the "Appropriate Harvest Criteria".

** New Brunswick figures were adjusted to reflect the province's 1986 Inventory Report.

APPENDIX C

Productive Forest Land Ownership in the Atlantic Provinces [19]
(Thousands of hectares)

Type of ownership	Nfld.	P.E.I.	N.S.	N.B. *	Atlantic	Maritime
Private industrial	4 (0.03%)		846 (22.5%)	1,248 (21.1%)	2,098 (9.9%)	2,094 (21.0%)
Private non-industrial		257 (92.4%)	1,778 (47.2%)	1,802 (30.4%)	3,837 (18.1%)	3,837 (38.5%)
Municipal	15 (0.13%)				15	
Unspecified	169 (1.4%)				169 (0.8%)	
Provincial	11,021(97.8%)	20 (7.2%)	1,030 (27.3%)	2,871(48.5%)	14,942 (70.4%)	3,921 (39.3%)
Federal	60 (0.5%)	2 (0.07%)	112 (3.0%)		174 (0.8%)	114 (1.1%)
Total	11,269	278	3,767	5,921	21,235	9,966

* New Brunswick figures were adjusted to reflect the province's 1986 Inventory Report.

APPENDIX D

1995 Stumpage Charges in the Atlantic Provinces ($/m³) [20]

Tenure Type	Newfoundland	Nova Scotia	New Brunswick
Timber licences (N.S.)	$2.38/ m³	$9.43/ m³	
Licences (N.B.)	(Provincial Crown Land)		
Sawlogs			
Softwood			$13.36/ m³
Pulpwood			
Softwood			$6.39/m³
Hardwood			$3.77/m³
Licence agreement (N.S.)			
Sub-licence (N.B.)			
Sawlogs			
Softwood		$12.96/m³	$13.36/m³
Hardwood		$16.13/m³	
Pulpwood			
Softwood		$4.18/m³	$6.39/m³
Hardwood		$3.91/m³	$3.77/m³
Studwood			
Softwood		$10.10/m³	
Hardwood		$14.05/m³	
Management agreements (N.S.)			
Permit (N.B.)			
Sawlogs			
Softwood		$11.11/m³ - $12.96/m³	$19.08/m³
Hardwood		$16.13/m³	
Pulpwood			
Softwood		$3.72/m³ - $4.16/m³	$9.40/m³
Hardwood		$3.15/m³ -$3.69/m³	$5.55/m³
Studwood			
Softwood		$10.10/m³	
Hardwood		$14.05/m³	
Fuelwood			$5.55/m³

APPENDIX E

ALLOCATION POLICIES FOR CROWN LANDS[21]

In New Brunswick, Management of provincial Crown land is assigned to major mills located in the province as long as they remain sustainably managed. Smaller mills can access Crown timber through volume contracts with the licensee and the provincial government. There are ten (10) licences and 79 sub-licences that access crown lands. Sub-licensees have no management responsibilities. In addition to royalties, they pay to licensees a road charge and a management charge per cubic meter. The charges are set by the licensees. Permits amount to less than 5% of the harvest and stumpage is usually based on competitive bids. Industrial freehold land is owned by either licensees, sub-licensees or other owners with a wood-processing facility. Over three fourths (3/4) of industrial free-hold is owned by four major companies. Private woodlots are organized into seven forest products marketing boards, which help to regulate the flow of wood from woodlots to mills.

In Nova Scotia, two large pulp and paper companies hold long-term licences to almost 75% of the province's Crown forest land. The majority of the commercial land is owned by three large pulp and paper companies. License agreements are normally 10-year agreements for wood fibre volumes. Designated cuts are subject to terms and conditions to effect silviculture prescriptions, the costs of which may be eligible for funding. Several licence agreements require the licensee to undertake follow-up stand establishment work such as planting and thinning. Letters of authority are short-term authorizations to remove wood for personal use. Timber licenses are awarded through tender process for up to two years.

The quasi-totality of Prince Edward Island's forests are privately owned, and while Newfoundland has an exceptionally high percentage of provincially-owned Crown land, the government has entered long-term agreements with the major pulp and paper companies of the province.

APPENDIX F

PROVINCIAL WOOD PRODUCTION STATISTICS

Volume Harvested and Annual Allowable Cut for the Atlantic Provinces [22] (Thousands of m^3)						
	1990	1991	1992	1993	1994	1995
Newfoundland						
Softwood harvest	2,667	2,427	2,503	2,875	2,290	2,824
Softwood AAC	2,980	2,980	2,980	2,980	2,980	2,980
Deficit/surplus	-313	-553	+477	+105	+690	+156
Hardwood harvest	210	253	317	256	155	160
Hardwood AAC	0	0	0	0	0	0
Deficit/surplus	-210	-253	-317	-256	-155	-160
Total harvest	2,877	2,680	2,820	3,131	2,445	2,984
Total AAC	2,980	2,980	2,980	2,980	2,980	2,980
Deficit/surplus	-103	-300	+160	-151	+535	-4
Prince Edward Island						
Softwood harvest	267	248	303	335	368	490
Softwood AAC	300	300	300	300	300	300
Deficit/surplus	-33	-52	-3	-35	-68	-190
Hardwood harvest	181	204	207	199	151	148
Hardwood AAC	190	190	190	190	190	190
Deficit/surplus	-9	-14	-17	-9	-39	-42
Total harvest	448	452	510	534	519	638
Total AAC	490	490	490	490	490	490
Deficit/surplus	-42	-38	-20	-44	-29	-148
Nova Scotia						
Softwood harvest	3,714	3,498	3,592	3,863	4,229	4,858
Softwood AAC	3,750	3,750	3,750	3,750	3,750	3,750
Deficit/surplus	-36	-252	+158	-113	-479	-1,108
Hardwood harvest	925	850	656	722	877	625
Hardwood AAC	1,500	1,500	1,500	1,500	1,500	1,500
Deficit/surplus	-575	-650	-844	+778	+623	-875
Total harvest	4,639	4,348	4,248	4,585	5,106	5,483
Total AAC	5,250	5,250	5,250	5,250	5,250	5,250
Deficit/surplus	+611	+902	+1,002	+665	+144	-233
New Brunswick						
Softwood harvest	7,133	6,693	7,405	7,153	7,276	7,750
Softwood AAC	6,843	6,843	6,843	6,843	6,843	6,843
Deficit/surplus	-290	+150	-562	-310	-433	-907
Hardwood harvest	1,691	1,949	1,800	1,806	1,993	2,305
Hardwood AAC	4,161	4,161	4,161	4,161	4,161	4,161
Deficit/surplus	+2,470	+2,212	+2,361	+2,355	+2,168	+1,856
Total harvest	8,824	8,642	9,205	8,959	9,269	10,055
Total AAC	10,735	10,735	10,735	10,735	10,735	10,735
Deficit/surplus	-1,911	-2,093	+1,530	-1,776	+1,466	-682

APPENDIX F (cont'd)

PROVINCIAL WOOD PRODUCTION STATISTICS

Volume Harvested and Annual Allowable Cut (AAC) [23] (Thousands of m^3)						
Atlantic region						
	1990	**1991**	**1992**	**1993**	**1994**	**1995**
Softwood harvest	13,781	12,866	13,803	14,226	14,163	15,922
Softwood AAC	13,873	13,873	13,873	13,873	13,873	13,873
Deficit/surplus	+92	−1,007	+70	-353	-290	-2,049
Hardwood harvest	3,007	3,256	2,980	2,983	3,176	3,238
Hardwood AAC	5,851	5,851	5,851	5,851	5,851	5,851
Deficit/surplus	+2,884	2,595	+2,871	+2,868	+2,675	+2,613
Total harvest	16,788	16,122	16,783	17,209	17,339	19,160
Total AAC	19,724	19,724	19,724	19,724	19,724	19,724
Deficit/surplus	+2,936	−3,602	−2,941	−2,515	+2,385	+564
Maritime provinces						
Softwood harvest	11,114	10,439	11,300	11,351	11,873	13,098
Softwood AAC	10,893	10,893	10,893	10,893	10,893	10,893
Deficit/surplus	-221	+454	-407	-458	-980	-2,205
Hardwood harvest	2,797	3,003	2,663	2,727	3,021	3,078
Hardwood AAC	5,851	5,851	5,851	5,851	5,851	5,851
Deficit/surplus	−3,054	−2,848	−3,188	+3,124	−2,830	2,773
Total harvest	13,911	13,442	13,963	14,078	14,894	16,176
Total AAC	16,744	16,744	16,744	16,744	16,744	16,744
Deficit/surplus	−2.833	−3.302	−2,781	−2.666	−1,850	−568

APPENDIX G

Total Imports of Roundwood for the Atlantic Region 1992-1997 (m^3) [24]						
	1992	**1993**	**1994**	**1995**	**1996**	**1997**
NFLD.	107,053	0	98,832	0	0	0
P.E.I.	53	0	0	260	0	0
N.S.	0	63	4	133	0	21
N.B.	451,584	550,783	670,049	486,774	573,,054	483,629
Atlantic	**558,690**	**550,846**	**768,,885**	**487,167**	**573,054**	**483,650**

APPENDIX H

THE DENMARK EXPERIENCE

Denmark is a country which has developed a high value-added woods products industry. What is most surprising is that Denmark has virtually no forests. Its economy is focused on trade, with 32% of its Gross Domestic Product (GDP) is derived from exports. Denmark's trade strategy has had a direct impact on the well-being of its citizens; the average per capita income is approximately $25,000 U.S.

Its wood and furniture industry has sales of close to $1 billion U.S., with 800 manufacturing firms and 25,000 employees. Its product line consists of 25% of chairs and sofas, 25% of closets, 16% of shelves and 11% of tables. Over three quarters of all firms employ less than 50 people.

However, the industry did not become successful overnight. In the mid-80s, the Danish government decided that it would develop a series of broad industrial networks targeting three sectors: the U.S. film industry, the German electronics industry and the Italian furniture industry. The national government established three programs worth $75 million U.S. One third of that amount, or $25 million U.S., was set aside for the wood and furniture industry, so that the industry could benefit from marketing talent for small groups of manufacturers.

By 1992-1994, the networks had become so successful that they no longer needed government assistance. In ten years, the 400 companies involved in networks for the three sectors had boosted sales from 2 billion to 14 billion DKK.[25]

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THE WOOD INDUSTRY IN ATLANTIC CANADA: A FOCUS ON VALUE-ADDED

PART 2: STATE OF THE INDUSTRY

ATLANTIC CANADA OPPORTUNITIES AGENCY *NOVEMBER 1998*

TABLE OF CONTENTS

EXECUTIVE SUMMARY

INTRODUCTION

This paper is the second in a six-part series prepared by the Atlantic Canada Opportunities Agency (ACOA) in consultation with the governments of the four Atlantic provinces on the economic benefits and opportunities that exist in the value-added wood products industry in the Atlantic provinces. While maintaining a focus on the value-added aspects of this sector, the series will examine the following aspects of the industry: State of the Resource; State of the Industry; Productivity and Economic Benefits; Products and Markets; Trade and Regulation; and Needs, Challenges and Targets.

This report is a static analysis of the wood products industry in the Atlantic provinces. It examines the structure of the industry, along with the level of employment, wages and salaries, shipments and exports as well as value-added. Throughout the paper, comparisons are made with the Canadian wood products industry.

SUMMARY

Gross Domestic Product growth is strong in the wood products industry of Atlantic Canada, with average annual growth and total growth between 1990 and 1996 at over three times the national average. More than half of the establishments in the industry are sawmills, while one quarter of establishments are in the sash, door and other millwork industries. The wood industries in the Atlantic provinces generated over 7000 direct jobs in 1995. Over $190 million in salaries and wages were paid out to employees in that same year. Growth in shipments and exports were also very strong, with exports approaching the $1 billion mark in 1997. Imports have remained at relatively the same level between 1992 and 1997. Transportation of wood products is divided between marine with 38.7%, trucking at 40.2% and rail with 21.1%.

CONCLUSIONS

Atlantic Canada produces approximately 10% of the national Annual Allowable Cut, yet value-added in the region's wood industries accounts for only 4% of value-added in all of Canada. In 1995, salaries and wages in Atlantic Canada accounted for only 4% of national wages in the wood industries. Atlantic Canada has 12% of establishments in Canada, but only 6% of employees. In 1995, this worked out to an average of 11 employees per establishment in the Atlantic provinces, while the national average is 21 employees per establishment.

With the exception of industrial woodworking graduates from the Woodworking Centre of Excellence who have been able to find employment in New Brunswick and Nova Scotia, the Atlantic region has difficulty in retaining forestry and woodworking graduates, despite strong programs in universities, community colleges and professional associations.

PART 2

STATE OF THE INDUSTRY

1. INDUSTRY STRUCTURE

The Standard Industrial Classification (SIC) divides the wood industries into six sub-groups: the Sawmill, Planing and Shingles industry, the Veneer and Plywood industry which includes hardwood and softwood products, the Sash, Door and Other Millwork category which includes prefabricated buildings, wooden kitchen cabinets, bathroom vanities, and wooden doors and windows, the Wooden Box and Pallet industry, Coffins and Caskets and other wood industries. The pulp and paper industry is not included in the wood products group and will not be covered in this series of reports on the wood industry. It should also be noted that the Christmas tree industry is not included in the wood industries.

Based on a total of 662 establishments in the industry in 1995, the Sawmill, Planing and Shingles sector constitutes the largest part of wood industries in Atlantic Canada, with slightly more than half of the establishments which are "primarily engaged in manufacturing sawing and planing lumber from roundwood."[1] Kiln-drying, as well as other lumber-drying activities, are also included in this sub-group of the wood industry. The main by-products from the sawmill sector are wood chips, hog fuel, sawdust, shavings and slabs. Other by-products include cooperage stock, dimension stock, lumber rough and dressed, mine timbers, fence pickets, railway ties, shook, box and crate packages, spoolwood, wood lath and wood squares.

In other Statistics Canada reports, the total number of establishments in wood industry is given as 278. On this basis Atlantic Canada has 26 employees per establishment. Capability with 2872 establishments, Canada has an average of 41 employees per establishment.

Over one quarter of wood manufacturers in the Atlantic region are found in the sash, door and other millwork industries. Under SIC classification, this subgroup of the wood industries is involved in the manufacturing of prefabricated wood buildings, wooden kitchen cabinets and bathroom vanities, and wooden doors and windows. Approximately 10% of firms in Atlantic Canada are involved in shingles and shakes, hardwood veneer and plywood, wooden box and pallet and wood preservation. Another 13% of businesses are categorized under other wood industries. It should also be noted that in 1995 there were no wood manufacturers in Atlantic Canada involved in waferboard and softwood veneer and plywood, although Eagle Forest Products in the Miramichi has started producing waferboard and by 1997 employed 130 people. Almost three quarters of all establishments in Atlantic Canada are found in New Brunswick and Nova Scotia. The total number of establishments in Atlantic Canada accounts for approximately 12% of all establishments in Canada. **(SEE APPENDIX A)**

According to the Twenty Year Forestry Development Plan, the Newfoundland sawmill industry is comprised of approximately 2000 commercial and domestic sawmills. These mills range in size from small push bench family-run operations (less than 10 000 fbm) to modern industrial operations producing several million fbm per year. Out of the estimated total, only fifteen mills in the province are capable of producing more than 500,000 board feet per year. Given the small size of many of these mills, a significant number of them are not captured in Statistics Canada data.

2. ECONOMIC PROFILE

2.1 Employment: The wood industries in Atlantic Canada employed over 7000 people in 1995, and that number has grown by 8.7% over the 1990-1995 period. The wood industries also generate a significant number of indirect jobs in the Atlantic region. In 1990, based on the employment multiplier of that year, the industry sustained over 5,000 additional jobs. Employment is concentrated primarily in New Brunswick which accounts for 72% of the direct jobs in the industry, experiencing constant employment growth over the 1990-1995 period. Nova Scotia is second, employing almost 20% of people in the industry. Total employment in Newfoundland grew over the same period, but growth was erratic from one year to the next. The wood products industries in both Nova Scotia and Prince Edward Island are reported to have lost a quarter of their employees between 1990 and 1995. **(SEE APPENDIX B)**

In 1995, Atlantic Canada accounted for only 6% of employment in the Canadian industry. On average there were 11 people per establishment in Atlantic Canada, while the national average indicated 21 employees per establishment. The fact that Atlantic Canada has about 12% of all establishments in Canada and only 6% of all employees in the country confirms the small sawmill image of Atlantic Canada. In Newfoundland, where 64% of establishments are sawmills, there are only three employees per establishment. In Nova Scotia, there are 6 employees per establishment, while more than half of establishments are sawmills. In New Brunswick, where the percentage of sawmills is lowest, the number of employees per establishment is also highest at 21.

2.2 Resource Allocation: Another factor which could explain the small size of establishments is the relatively small size of harvesting areas and crown land allocations in the Atlantic provinces. It has already been established that the level of private ownership is high in the Maritime region. Harvesting opportunities from private woodlots are often limited by the small size of lots available. In Newfoundland, where 98% of forests are on crown land, the provincial government has engaged in long term contracts with the large pulp and paper companies for crown land allocations. In Nova Scotia, out of a total of 1.8 million m^3, only 16.3% of crown lands were allocated in 1995 to sawmills or other wood manufacturers, while the remaining 83.7% of allocations were attributed to pulp and paper mills. [2] In New Brunswick ,where the number of employees is on par with the national average, sawmills and other secondary processors account for (3 million m^3 out of

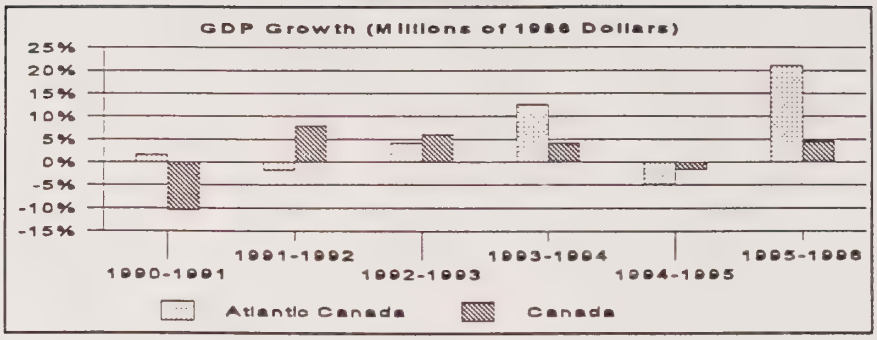
4.4 million m^3) 66.5% of harvesting and consumption on crown lands, with pulp mills making up the difference.[3] If we compare the average size of private woodlots in the Maritimes, we find that Nova Scotia has an approximate average of 87.5 ha per private woodlot, while New Brunswick has an average of 85.6 ha and the average on Prince Edward Island is 21.4 ha.

2.3 Wages and Salaries: In 1995, over $190 million were paid in wages and salaries in the wood industries of Atlantic Canada. Overall growth in wages and salaries for the Atlantic region outpaced growth at the national level because of strong growth in New Brunswick and Newfoundland. The Atlantic region accounts for only 4% of national wages and salaries in the industry, despite accounting for over 6% of the workforce and 12% of establishments. Nova Scotia and Prince Edward Island suffered slight reductions in wages and salaries because of decreases in employment over the same period. However, the reduction in wages was only a fraction of the losses in employment, an indication of the stability of wages in this sector. In 1994, Atlantic Canadians working in the industry earned on average $26,021.55 compared to $53,432.40 in the paper and allied products industries. In 1995, the average wages and salaries of $26,532.86 in Atlantic Canada's wood industries were approximately $10,000 less than those in Canada's wood industries, where the average was $36,275.29. **(SEE APPENDIX C)**

A study by the New Brunswick Sub-license Forestry Alliance found that wages and salaries ranged from $9320 in mills producing less than 1 million board feet annually to $29,880 in mills producing over 15 million board feet annually.

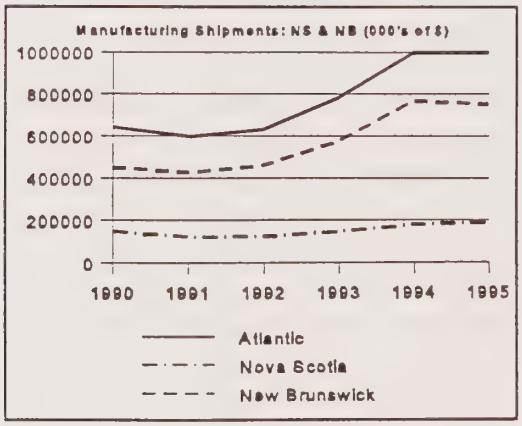
2.4 Gross Domestic Product (GDP): The overall GDP picture for the wood industries in the Atlantic region is very positive over the 1990-1996 period, increasing from $188.5 million to $254.3 million. In fact, the average annual GDP growth for the industry and the total GDP growth over the period are over three times the national rate. However, the strength of the Atlantic wood industries rests squarely on the back of New Brunswick. The other three provinces have had unsteady GDP growth, which translates into erratic growth patterns from one year to the next for the region as a whole as illustrated in Graphic 1. The GDP of the wood industries in Prince Edward Island is too small to be registered by Statistics Canada. In Newfoundland, the GDP has fallen slightly from highs in the early nineties. Nova Scotia's wood industries have been rebuilding since the recession, but they still contribute only slightly more to the provincial economy than they did at the beginning of the decade. New Brunswick's GDP, on the other hand, had an average annual growth of 7.3%, over four times the national average. Total GDP growth over the 1990-1996 for New Brunswick's wood industries was over five times the national rate. **(SEE APPENDIX D)**

GRAPHIC 1

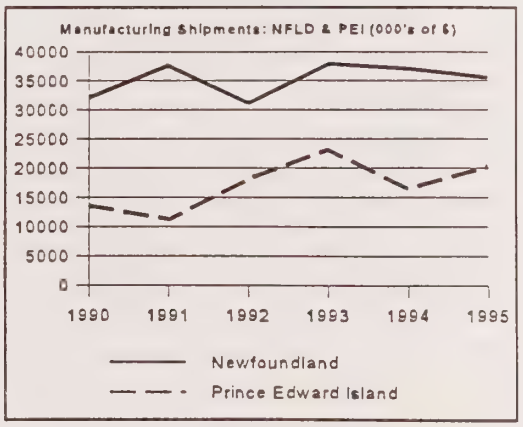


2.5 **Manufacturing Shipments:** Over the 1990-1995 period, manufacturing shipments from the Atlantic region have increased by over 50% at an average annual rate of 10%, from $642.4 million in 1990 to $996.7 million in 1995. This regional trend mirrors the national pattern in Graphics 2 and 3. However, growth in shipments is unevenly distributed between the Atlantic provinces. Erratic behaviour is evident in the manufacturing shipments of the wood industries of Newfoundland and Prince Edward Island, where total values can increase by as much as they decrease from one year to the next, reflecting uncertainty and instability in the wood industries of those provinces. Shipments in Nova Scotia experienced a more steady growth after a considerable drop from highs in the late eighties and early nineties. New Brunswick's shipments are the steadiest and most robust of the Atlantic region. Again, growth in New Brunswick outpaced growth on the national level. Moreover, New Brunswick's shipments accounted for over 75% of the Atlantic region's shipments. Notwithstanding New Brunswick's strength, total shipments from the Atlantic region represented only slightly more than 4% of national shipments between 1990 and 1995. **(SEE APPENDIX E)**

GRAPHIC 2

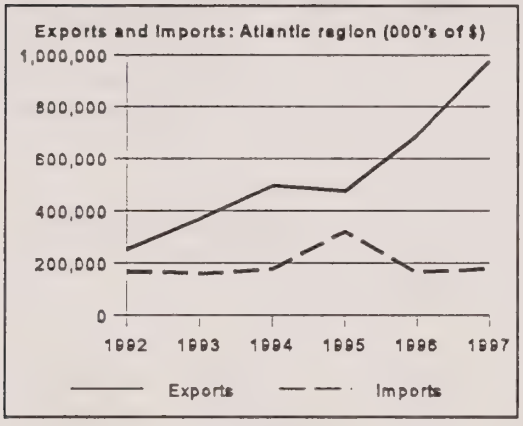


GRAPHIC 3

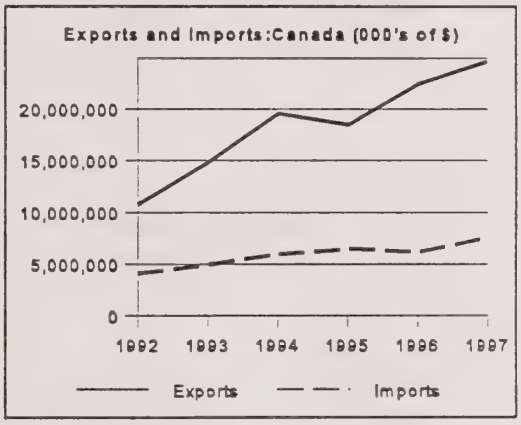


2.6 Exports and Imports: More recent data on exports and imports of wood products illustrate a clear trend in the Atlantic region in Graphics 4 and 5. In 1992, exports and imports were almost at the same level. By 1997, exports had risen dramatically, while imports stayed at relatively the same level. In the period from 1992 to 1997, exports increased by a total of 288.8% at an average annual rate of growth of 32.8%. In 1997, the value of exports from the Atlantic region approached the $1 billion mark. In that same year, New Brunswick's exports accounted for 77.4% of exports. Although Prince Edward Island had the lowest level of exports in the region, it experienced an extremely high rate of growth from 1992 to 1997 going from only $238 000 worth of exports to over $14 million. During the same period, imports for the Atlantic region remained relatively stable, despite a sharp increase in 1995, increasing only by a total of 14.7% at an average annual rate of 7%. Comparing Atlantic exports to Canadian totals, Atlantic Canada has almost doubled its share of Canadian exports, going from 2.3% of Canadian exports in 1992 to 4% in 1997. The rates of growth in the Atlantic provinces were almost twice the national rates from 1992 to 1997. **(SEE APPENDIX F)**

GRAPHIC 4



GRAPHIC 5



Between 1992 and 1995, the proportion of shipments destined for export markets grew from 39.6% to 47.5%. Although the shipment figures for 1996 and 1997 are not available, it is safe to assume that exports now represent a greater proportion of shipments because exports have been growing at a higher rate than shipments and exports more than doubled from 1995 to 1997. Moreover, wood product exports have more than doubled their share of total exports from the Atlantic provinces, rising from 3.7% in 1992 to 8.5% in 1997. In New Brunswick, that proportion is much higher, ranging from 6.4% in 1992 to 13.9% in 1997. These increases in the value of exports could be explained by some of the following reasons:

(1) Between 1990 and 1996, the value of the Canadian dollar had depreciated by a total of 14.5% compared to the American dollar. By the end of 1997, the Canadian dollar had plunged below $US 0.70. Such favorable exchange rates

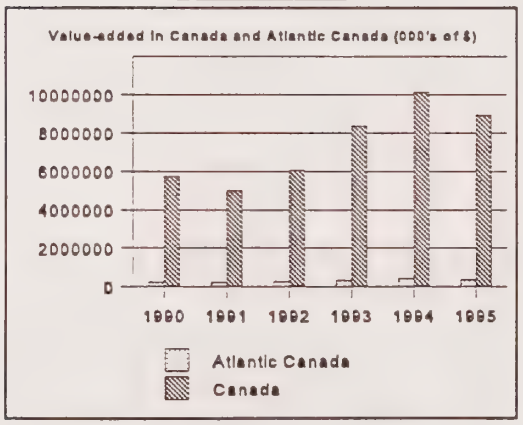
have a beneficial effect on exports of wood products from the Atlantic region. Moreover, the American economy has been very strong, creating a demand for housing and related wood products; and

(2) Furthermore, the Maritime provinces, which traditionally benefitted from tariff and quota exemptions, have been guaranteed greater access to American markets by Bilateral Agreement on Softwood Lumber which came into effect on April 1, 1996.

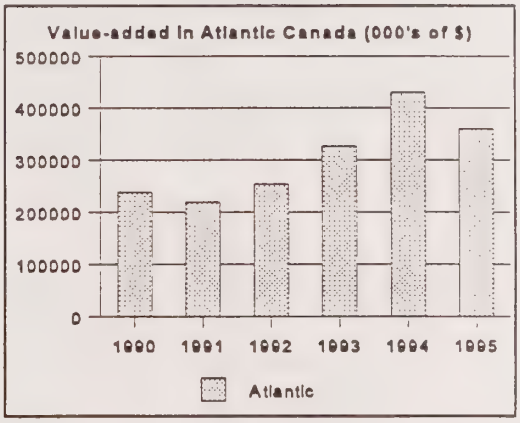
2.7 Value-added: Over the 1990-1995 period, value-added in the secondary wood industry of the Atlantic provinces has increased in each individual Atlantic province as well as for the region as a whole, where value-added grew from $238.1 million to $358.4 million. The increase was greatest in New Brunswick, where total value-added grew by 61.9% over the 1990-1995 period at an average annual growth rate of 11.3%. Growth in the Atlantic region mirrored the pattern in New Brunswick with a total increase of over 50% during the 1990-1995 period at an average annual rate of 10.3%. **(SEE APPENDIX G)**

There are several definitions of value-added. On the macro-economic level, value-added is equal to Gross Domestic Product. On the industry level, value-added is the difference between gross shipments and intermediate inputs. In this case, value-added represents wages, profits and the cost of capital. Governments also have their own definitions of value-added. With regards to the wood industries, the government of New Brunswick defined value-added as products of greater economic value.

GRAPHIC 6



GRAPHIC 7



However, Atlantic Canada is trailing the rest of Canada in terms of value-added, a situation which is reflected in Graphics 6 and 7. In 1995, value-added in Atlantic Canada accounted for only 4% of total value-added in Canada, which is line with the percentage of wages and salaries accounted for by the Atlantic region. This low level of value-added is a concern for the Atlantic region particularly since it accounts for 12% of establishments and 6% of employees, and approximately 10% of national raw wood production.

There are two possible avenues in value-added: conventional and recovery. Conventional value-added operations include turning boards into panelling and turning strips into flooring. Recovery on the other hand is the transformation of slabs into boards, trim ends into finger joint blocks, edging strips into moulding blanks, short boards into component parts, and waney reject squares into smaller usable squares. For years, recovery had been avoided by many manufacturers in the Atlantic region because of the high cost of the equipment required. However, a 1997 study by the Centre for Advanced Wood Processing found that 86% of sawmills in New Brunswick and Nova Scotia had upgraded their equipment in order to achieve better recovery and higher production levels. [4]

3. INFRASTRUCTURE

3.1 Transportation: The three major transportation modes for the region's Wood Products Industry are road, rail and marine. The following analysis is based on Statistics Canada data which includes forestry products such as newsprint and wood pulp which are not normally included in the wood products group. In 1995 and 1996 out of a total of 6.8 million tonnes of wood and wood products shipped from the Atlantic provinces, marine transport accounted for 38.7%, trucking represented 40.2% and transport by rail was used for 21.1%.

Although the federal transport subsidy has been removed, it remains to be seen what the net impact will be on the transportation of wood products.

In 1996, marine transport traffic for wood products from the Atlantic provinces was primarily destined for international markets such as the Northern and Southern United States, Europe and the Middle East, Asia and South-East Asia, and Central and South America. The two major international ports for wood products movement are Saint John and Halifax, with 35% and 20% respectively of the 1996 Atlantic total of 2.6 million tonnes. On the domestic front there was a total of 89,363 metric tonnes shipped, with the major ports being Pugwash in Nova Scotia and Goose Bay and Lewisporte in Newfoundland. **(SEE APPENDICES H, I and J)**

Beyond the obvious home-market demands, truck traffic in the Atlantic region may be high due to shipments to ports and shipments to value-added mills. In 1996, over 2.7 million tonnes of wood products were shipped from the Atlantic provinces by truck. Also, it should be noted that 56% of Atlantic shipments to Quebec and Ontario are carried by truck. Transport by rail remains an important aspect of the forest industry. In 1995, over 1.4 million tonnes of product were shipped by train to other destinations in North America. Moreover, 40% of shipments to Ontario and Québec are transported by rail, while 99% of the shipments to western Canada go by rail.

3.2 Education and Training: The University of New Brunswick's (UNB) Faculty of Forestry offers a BSc in Forestry Engineering, as well as a BSc in Forestry with concentrations in computer applications, parks and wilderness, wildlife and wood products. Graduate degrees include MScF, MScFE, MF, MFE and PhD. In 1997, the University graduated 78 students from Forestry, 23 students from Forestry Engineering with Bachelor degrees, five students with Masters and four with PhDs. However, out of 110 graduates in 1997, only 30% found employment in the region, while 55% found employment in the Western provinces. The inability to keep students in the region presents a problem for the Forestry Industry.

In 1990-1991, Prince Edward Island and Nova Scotia had the highest levels of education in Atlantic Canada's wood industries with 57% and 43% of employees respectively who have more than secondary education. Newfoundland and New Brunswick have the lowest levels of educational attainment, with 63% and 67% of employees who have only elementary and/or secondary education.[5]

The Université de Moncton (U de M), Edmundston Campus, includes L'École des sciences forestières which also offers a BScF (aménagement des forêts). The school has graduated five to ten students each year since its establishment eight years ago. Graduate retention for the Atlantic provinces is high at l'Université de Moncton, with 67% of graduates over the past eight years finding employment in New Brunswick and Nova Scotia. **(SEE APPENDIX K)**

The Maritime Forest Ranger School offers a 23-month program which graduates over 50 students each year. A similar program in Newfoundland, the Forest Resources Technology Program, at the College of the North Atlantic in Corner Brook offers a 24-month program which graduates 25 students each year: 25% of the Class of 1997 found jobs in British Columbia and most of the remainder work seasonally (eight months per year) in Newfoundland - with the exception of three who went to New Brunswick and Nova Scotia.

The Woodworking Centre of Excellence in Campbellton, New Brunswick, established in 1996, operates as a component of the New Brunswick Community College, with a staff that includes an industrial design engineer and mechanical engineer. The Centre offers two programs: a 40-week Woodworking Processing Techniques Certificate and a second year Woodworking Technology Diploma. Out of the sixteen students from the College's first graduating class in 1998, 13 or 81% will be staying to work in the Atlantic region, with nine staying in New Brunswick, and four in Nova Scotia.

Claude LaPointe, the Centre's first director suggests that the industry in New Brunswick alone could absorb 45 graduates per year, and the long-term survival of the Centre will require that more students enroll from other Atlantic provinces.

Other training programs in the Atlantic region include the Nova Scotia Department of Natural Resources Sawmill Extension Service, the MRFRS training program for sawmills in Fredericton, the Maritime Lumber Bureau Grader Training Program, as well as training workshops from the Wood Products Group and the Canadian Woodlands Forum.

3.3 Research and Technology: The Wood Science and Technology Centre, established in 1988, at the University of New Brunswick campus in Fredericton, is the major R&D facility in the region servicing the Secondary Wood Industry. The mandate of the Centre is to perform the duties of a testing lab and research lab for the industry. The Centre is ISO 9000 certified and it has been involved in such areas as wood preservation, the engineering of wood structures, and the study of wood degradation. It should be noted that the level of technology varies considerably in the region's wood industry from province to province and from sector to sector

3.4 Marketing: The **Wood Products Group** (WPG) is an industry association that supports marketing networks for firms which add value to wood beyond the stage of primary commodity production.[6] The WPG is a not-for-profit association of specialty and value-added wood product manufacturers, formed in 1992, with a present membership of about 100 firms and associations in New Brunswick, Prince Edward Island, Nova Scotia and Newfoundland.

The Group's overall mandate is to create business advantage for its members. The Board of Directors includes voting representation from industry members, Industry Canada and the New Brunswick government. The WPG also acts as a focal point for communications and information within the industry. Their two main publications are a regular bulletin with information on markets and prices, and the Directory of Specialty Wood Products. The Group organizes and coordinates a wide variety of technical training courses for employees of member companies. The WPG also provides marketing services by participating in various trade fairs and industry expositions, and coordinating incoming as well as outgoing trade missions. The Group assists member companies with the technicalities and details associated with export sales.

The **Maritime Lumber Bureau (MLB)** is the region's other marketing agent, representing, largely, the sawmill group. It is currently accredited to use the National Lumber Grades Authority Rules by the Canadian Lumber Standards Accreditation Board and the American Lumber Standards. Under these designates, the MLB maintains a quality assurance program through the training of mill personnel to grade the appropriate standards and issues grade marks (stamps) for application to the product.

4. ISSUES AND OPTIONS

Demand for wood products from the Atlantic region, reflected in sharp increases in shipments and exports, have sustained a high level of economic activity in the industry. There is potential for the public sector to participate in certain initiatives such as market research, trade development, training and education. Active private sector organizations, such as the Wood Products Group and the Maritime Lumber Bureau, offer the public sector an opportunity to work with an industry champion for development purposes.

The wood products industry in the Atlantic region has a very low value added component compared to the rest of the country. Atlantic Canada produces approximately 10% of the national Annual Allowable Cut. Yet, value-added in the wood industries accounts for only 4% of value-added in Canada.

Further research is required to determine the efficiency of labour and capital utilization in Atlantic Canada compared to the Canadian, American and European wood industries. The following two problems may be due to the low level of wages in Atlantic Canada's wood industries:

- With salaries and wages in Atlantic Canada accounting for only 4% of national wages in the wood industries, the number of establishments may be too high for the number of employees in the industry. Atlantic Canada has 12% of establishments in Canada, but only 6% of employees. This works out to an average of 11 employees per establishment in the Atlantic provinces, while the national average is 21 employees per establishment. In New Brunswick, the number of employees per establishment is exactly the same as that of Canada. There may also be a link between the size of establishments in Atlantic Canada and the quantity, size and security of allocations to sawmills and other secondary manufacturers compared to other regions in Canada; and

- With the exception of woodworking graduates from the Woodworking Center of Excellence, who have been able to find work in N.B. and N.S., the Atlantic provinces have difficulty in retaining forestry graduates, despite strong programs in universities, community colleges and professional associations.

APPENDIX A

Number of Establishments, 1995[7]						
Type of establishments	NFLD	PEI	NS	NB	Atlantic	Canada
Sawmill, planing mill and shingle mill	0	0	0	0	0	0
Shingle and shake	1	0	1	7	9	148
Sawmill and Planing mill	89	20	122	102	333	1690
Hardwood veneer and plywood	1	0	3	2	6	74
Softwood Veneer and plywood	0	0	0	0	0	35
Prefabricated wooden buildings	2	0	4	6	12	164
Wooden kitchen cabinet and bathroom	16	2	14	22	54	1153
Wooden door and window	1	5	13	21	40	508
Other millwork	11	6	22	27	66	675
Wooden box and pallet	3	0	15	20	38	322
Coffin and casket	1	0	2	3	6	37
Other wood industries	0	0	0	0	0	0
Wood preservation	1	1	4	2	8	100
Particle board	0	0	0	1	1	41
Wafer board	0	0	0	0	0	12
Other wood industries N.E.C.	13	10	38	28	89	660
Total	139	44	238	241	662	5619

APPENDIX B

Employment in the Wood Industries of the Atlantic Region[8]						
Year	NFLD	PEI	NS	NB	Atlantic	Canada
1990	438	211	1859	4084	6592	115,490
1991	500	158	1467	3695	5820	100,656
1992	385	161	1322	3906	5774	103,586
1993	464	328	1369	4350	6511	109,961
1994	482	172	1504	4802	6960	117,982
1995	470	160	1371	5166	7167	118,285
Average annual growth *	2.6%	5.1%	(5.24%)	5.1%	1.7%	0.8%
Total growth over period	7.3%	(24.2%)	(26.3%)	26.5%	8.7%	2.4%

* It should be noted that, for each section of the economic profile, the average annual growth was calculated as the average of the six annual growth rates from 1990 to 1995, rather than a six-year average of the total growth over the period.

APPENDIX C

Wages and Salaries in the Wood Industries of the Atlantic Provinces[9] (Thousands of $)						
Year	NFLD	PEI	NS	NB	Atlantic	Canada
1990	8826	4480	35,771	100,068	149,145	3,565,204
1991	10365	3500	30,424	94,035	138,324	3,206,877
1992	8356	3359	30,005	99,345	141,065	3,401,158
1993	10,764	5837	30,506	109,985	157,092	3,704,956
1994	11,883	3507	37,641	128,079	181,110	4,100,971
1995	10,739	4375	35,280	139,767	190,161	4,290,823
Average annual growth	5.5%	6.5%	0.5%	7.2%	5.3%	4.1%
Total growth over period	21.7%	(2.3%)	(1.4%)	39.7%	27.5%	20.4%

APPENDIX D

Gross Domestic Product of the Wood Industries in Atlantic Canada [10] (Millions of 1986 Dollars)						
Year	NFLD	PEI	NS	NB	Atlantic	Canada
1990	8.7	n/a	43.1	136.6	188.5	4897.7
1991	10.6	n/a	33.4	147.6	191.6	4384.1
1992	7.8	n/a	35.7	144.8	188.3	4730.5
1993	9.8	n/a	35.7	150.6	196.1	5016.1
1994	8.6	n/a	38.5	173.8	220.9	5221.2
1995	7.5	n/a	38.4	164.2	210.1	5139.9
1996	7.5	n/a	43.5	203.3	254.3	5371
Average annual growth	-0.7%	n/a	1.0%	7.3%	5.4%	1.7%
Total growth over the period	-14%	n/a	0.9%	48.8%	34.9%	9.7%

APPENDIX E

Manufacturing Shipments from the Atlantic Provinces[11] (Thousands of dollars)						
Year	NFLD	PEI	NS	NB	Atlantic	Canada
1990	32,060	13,521	147,485	449,299	642,365	14,805,913
1991	37,556	11,152	121,638	425,110	595,456	13,165,658
1992	31,189	18,069	123,742	460,705	633,705	15,059,784
1993	37,873	23,072	146,272	576,109	783,326	19,082,928
1994	36,958	16,470	179,008	767,556	999,992	22,906,744
1995	35,444	20,250	189,717	751,306	996,717	23,257,096
Average annual growth	3.0%	4.1%	6.2%	11.8%	10.0%	10.3%
Total growth over period	10.6%	50.0%	28.6%	67.2%	55.2%	57.1%

APPENDIX F

Exports and Imports of Wood Products in the Atlantic Region [12] (Thousands of dollars)						
Year	**NFLD**	**PEI**	**NS**	**NB**	**Atlantic**	**Canada**
1992 Exports Imports	2094 5601	238 156	54,537 35,256	194,316 125,055	251,185 166,068	10,726,798 4,119,289
1993 Exports Imports	766 6854	660 369	53,645 23,836	313,716 128,515	368,787 159,574	14,796,526 4,959,199
1994 Exports Imports	3101 11,945	2317 413	66,235 23,199	422,888 141,164	494,541 176,721	19,501,738 5,924,983
1995 Exports Imports	1582 166,121	3221 262	79,634 19,610	389,336 135,623	473,773 321,616	18,449,724 6,444,051
1996 Exports Imports	1584 6078	6117 187	141,420 19,165	537,814 139,334	686,935 164,764	22,391,186 6,110,719
1997 Exports Imports	18,241 4596	14,424 453	188,177 24,379	755,823 147,801	976,665 177,229	24,706,942 7,506,764
Average annual rate of growth	Exports: 248.9% Imports: 301.6%	Exports: 138.6% Imports: 45.1%	Exports: 30.6% Imports: -5.1%	Exports: 33.4% Imports: 3.7%	Exports: 32.8% Imports: 9.7%	Exports: 19.2% Imports: 13.3%
Total growth over period	Exports: 771.1% Imports: -18.4%	Exports: 5960.5% Imports: 190.4%	Exports: 245.0% Imports: -30.9%	Exports: 289.0% Imports: 18.2%	Exports: 288.8% Imports: 6.7%	Exports: 130.3% Imports: 82.2%

APPENDIX G

Value-added in the Wood Products Sector of the Atlantic Provinces[13] (Thousands of dollars)						
Year	**NFLD**	**PEI**	**NS**	**NB**	**Atlantic**	**Canada**
1990	11,997	7387	54,424	164,248	238,056	5,728,276
1991	17,815	5573	39,387	156,290	219,065	4,978,688
1992	157,995	6756	46,597	184,369	253,517	6,057,679
1993	20,542	6535	57,605	240,574	325,256	8,344,305
1994	17,865	6125	78,068	327,483	429,541	10,125,950
1995	16,372	7720	68,371	265,963	358,426	8,920,598
Average annual growth	15.7%	2.6%	7.5%	11.3%	10.3%	11.1%
Total growth over period	36.5%	4.5%	25.6%	61.9%	50.6%	55.7%

APPENDIX H

Marine Transport, 1996
Atlantic Secondary Wood Products
Tonnage Loaded by Province of Origin

	Nfld.	P.E.I.	N.S.	N.B.
Domestic	11,179	45,207	32,977	--
International	609,273	4787	883,716	1,054,145

APPENDIX I

Truck Transport, 1996
Atlantic Secondary Wood Products
Atlantic Tonnage by Market of Destination

Atlantic	Quebec	Ontario	West	United States
1.604,381	278,547	208,251	109	653,187

APPENDIX J

Rail Transport, 1995
Atlantic Secondary Wood Products
Atlantic Tonnage by Market of Destination

Atlantic	204,435	U.S. North	210,957
Quebec	172,353	U.S. South	246,287
Ontario	176,122	U.S. Northeast	453,007
Canada West	18,917	U.S. West	10,912
Canada Total	**517,827**	**U.S. Total**	**921,163**

APPENDIX K

UNB Graduates, Forestry and Forestry Engineering, 1997
Employment Placements by Location

Location	%
Newfoundland	1
Prince Edward Island	0
Nova Scotia	6
New Brunswick	23
Quebec	1
Ontario	5
Manitoba	3
Saskatchewan	4
Alberta	3
British Columbia	45
U.S.A.	11
Caribbean	1

Source: Assistant Dean, Forestry, UNB

Université de Moncton Graduates with BScF, 1990-1997

Location	%	Employers	%
New Brunswick	50	Forestry Firms	40
Quebec	25	Consulting Firms	33
Cape Breton	17	Non-governmental organizations	17
Other	8	Government	10

Source: Doyen, L'École des sciences forestières, U de M

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6. 1997 Wood Products Group Programs and Services Report

7. Statistics Canada CANSIM 1998, Reference Table 5458

8. Statistic Canada CANSIM 1998, Reference Table 5458

9. Statistic Canada CANSIM 1998, Reference Table 5458

10. GDP by Maximum Detail

11. Statistics Canada CANSIM 1998, reference table 5458

12. TIERS 1998

13. Statistics Canada CANSIM 1998, Reference Table 5458

THE WOOD INDUSTRY IN ATLANTIC CANADA: A FOCUS ON VALUE-ADDED

PART 3: PRODUCTIVITY AND ECONOMIC BENEFITS

ATLANTIC CANADA OPPORTUNITIES AGENCY *NOVEMBER 1998*

TABLE OF CONTENTS

EXECUTIVE SUMMARY

INTRODUCTION

This paper is the third in a six-part series prepared by the Atlantic Canada Opportunities Agency (ACOA) in consultation with the governments of the four Atlantic provinces on the economic benefits and opportunities that exist in the value-added wood products industry in the Atlantic provinces. While maintaining a focus on the value-added aspects of this sector, the series will examine the following aspects of the industry: State of the Resource; State of the Industry; Productivity and Economic Benefits; Products and Markets; Trade and Regulation; and Needs, Challenges and Targets.

This report examines productivity issues in the secondary wood industry in Atlantic Canada, as well as the employment and economic benefits generated by the wood industry in comparison to the two other sectors of the forestry industry, namely logging and paper and allied products.

SUMMARY

Between 1990 and 1995, the three productivity ratios of the wood industry in Atlantic Canada increased substantially. The Atlantic region's shipments/wages ratio was on par with the national level, but the region's shipments to establishment ratio was only 44.3% of the national average in 1995. In that same year, Atlantic Canada's GDP productivity per employee was at 67.5% of Canada's. There are significant variations between provinces. For instance, New Brunswick is the leader in terms of all three productivity ratios, while Nova Scotia and Prince Edward Island lead the region in terms of productivity growth. All three productivity ratios in Newfoundland have decreased slightly from 1990 to 1995.

Between 1990 and 1995, the wood industry in Atlantic Canada generated an average of 10.7 jobs per $1 million in shipments, compared to only 4.6 in the paper and allied products industry. The proportion of indirect jobs in the wood industries is lower than in the paper and allied products sector, but higher than it is in logging, except in Newfoundland where the wood industry is third in terms of indirect employment. However, the proportion of economic spinoffs generated by the wood industries is equal to the paper and allied products sector in New Brunswick and greater than the same in Nova Scotia.

CONCLUSIONS

Notwithstanding low productivity levels compared to the rest of Canada, the wood industries in Atlantic Canada have a significant economic impact on the region, especially in terms of employment generated by shipments and economic spinoffs. However, productivity remains a problem for the region, particularly in terms of gross domestic product per employee and shipments per establishment.

PART 3

PRODUCTIVITY AND ECONOMIC BENEFITS

1. PRODUCTIVITY RATIOS

The three productivity ratios (GDP per employee, shipments per establishment and shipments per wages) of the wood industry in Atlantic Canada have improved considerably over the 1990-1995 period. Despite these significant gains, the Atlantic region's productivity ratios lag behind those for Canada. The area where this is most obvious is in the shipments/establishment ratio, where the Atlantic region's performance in 1995 was only 44.3% of the national average. **(SEE APPENDIX A)**

In certain areas, the antiquated state of equipment and lack of training may contribute to low productivity. In their 1995 report to the Newfoundland government, Ati Consultants pointed to obsolete sawing machines, excessive lumber target sizes, lack of production of low grade and short lumber and little production of wood chips in the province. Furthermore, a lack of training and little work experience were identified as severe impediments to the development of the secondary wood industries in Newfoundland and Labrador. Ati Consultants recommended adding value to wood products in the province through improvements in harvesting operations, debarkers and chippers, resawing, kerf sawing and design, edging, lumber drying and the utilization of waste wood.[1]

The weakness of the shipment to establishment ratio is most probably explained by the relatively high number of establishments per employee in the Atlantic region, given that the shipments to wages ratio of the Atlantic region is comparable to the national average. There seems to be a trade-off between a higher number of establishments in the Atlantic region and lower than average wages and salaries per worker. However, it is important to have a broad perspective on all the factors that come into play. Where one region may have higher transportation costs, other costs may be lower.

Other factors which may have an effect on productivity ratios include energy, transportation, inventory and regulatory costs. Firstly, the Maritime provinces have been exempt from the softwood lumber agreement between Canada and the United States. Secondly, the Maritime provinces also have a much greater concentration of productive forest land than in Canada as a whole. Thirdly, the wood products industry is more mature in other areas of Canada and the United States. Companies in more mature industries have better access to capital, and more established markets and stronger distribution

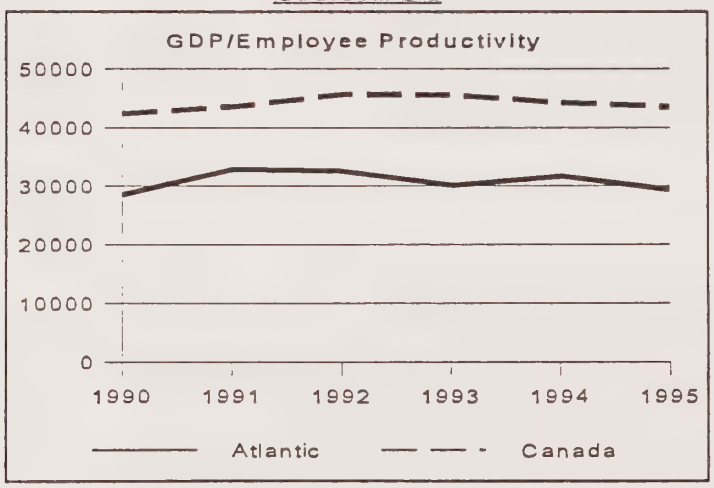
Given the complexity of the issue, a comprehensive study on specific costs in the secondary wood industry of Atlantic Canada is necessary in order to improve productivity comparisons. This study should include bench marking with other Canadian and American jurisdictions.

channels. This could also be applied to the Atlantic region, where New Brunswick's wood industry is more mature than in the other three provinces. Lastly, it is important to make the distinction between wood commodities and value-added wood products.

1.1 GDP per Employee: Although GDP productivity for the Atlantic region as a whole has increased slightly by 2.5% to $29,315 over the 1990-1995 period, the only individual province to have increased its GDP productivity is Nova Scotia where the increase was over 20% during the period. In 1995, New Brunswick remained the productivity leader in the region with approximately $32,000 per employee. Yet, as seen in Graphic 1, the Atlantic region's GDP productivity was down to 67.5% of the national average in 1995, after having reached a peak of 75.6% of the national level in 1991.

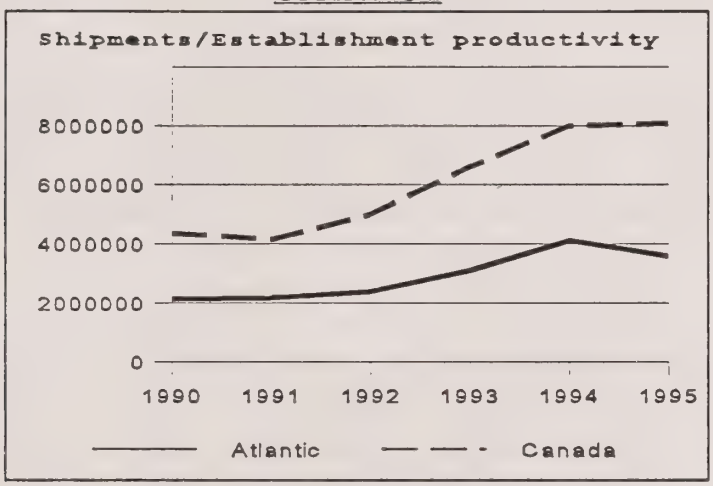
Gross Domestic Product (GDP) is itself a net concept to the extent that it covers only final output. Output is measured by shipments and revenue which are calculated at net selling values to the reporting establishment, thereby excluding discounts, returns, allowances, sales tax, excise duties and transportation charges by common or contract carriers, but include any transportation or delivery expense by the reporting establishment's own carriers. Domestic production refers to production occurring within the geographical boundaries of Canada[2].

GRAPHIC 1



1.2 Shipments per Establishment: Establishments in the Atlantic region posted significant gains in shipments over the 1990-1995 period, with a total increase in value of 67.4% from $2.1 million to $3.6 million. In 1995, New Brunswick far outstripped the other provinces with $5.4 million in total shipments per establishment, more than twice the average in Nova Scotia and Prince Edward Island and almost eight times the average in Newfoundland. In fact, Newfoundland was the only province which did not experience growth in shipments per establishment. The shipments per establishment productivity ratio was only 44.3% of the national average in 1995 as illustrated in Graphic 2. The poor showing of the Atlantic provinces can be explained in part by the relatively high number of establishments in the region. This does not however explain the apparent decline in that ratio.

GRAPHIC 2

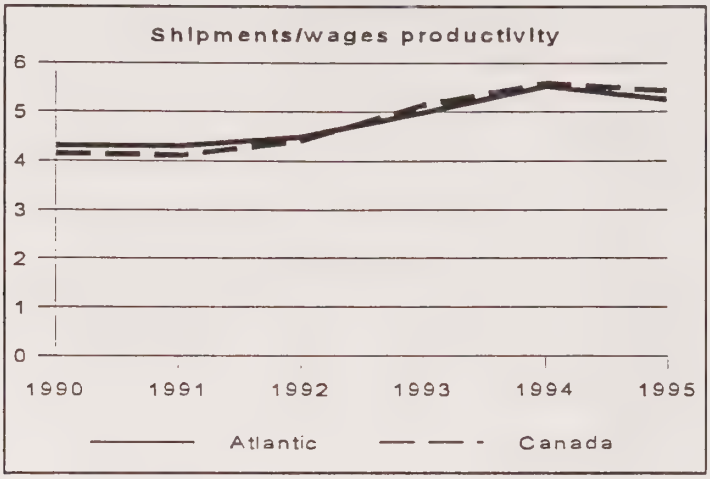


1.3 Shipments per Wages: The Atlantic region's wood industry is most competitive with other regions in the country in its shipments to wages ratio as demonstrated in Graphic 3. From 1990 to 1993, productivity in this category was higher in the Atlantic region than it was in the rest of the country. The national average has overtaken the Atlantic average in 1994 and 1995, but levels remain comparable. Productivity in this sector has increased in every Atlantic province except for Newfoundland. In 1995, New Brunswick and Nova Scotia shared the same ratio of shipments to wages of 5.38, which is only slightly lower than the national average of 5.42. In 1994, New Brunswick reached a shipment to wages ratio of 5.99, a rate not attained at the national level or by any other Atlantic province during that period. The productivity of the Atlantic

Other productivity ratios could also be used to measure the performance of the Atlantic region's wood industry. For instance, in order to see if the substantial investments in capital have had a beneficial effect on the industry, the productivity of capital could be measured by comparing to shipments or to GDP. Another example would be looking at total cost competitiveness by comparing total costs to total shipments.

region in this particular area seems to be more attributable to low wages than it is to high levels of shipments. We have already seen that in 1995 both wages and shipments in the Atlantic region accounted for only 4% of national levels.

GRAPHIC 3



2. ECONOMIC BENEFITS

As seen in Table 1, the main economic benefit to be examined is the relative level of employment provided by each forestry sector. Employment is measured both in terms of shipments per employee and the employment multiplier which gives an indication of indirect jobs generated by the industry. The overall economic impact of each sector will also be evaluated using the gross production multiplier (GPM), which gives the benefits in the provincial economy of each dollar of shipments. A more detailed regional survey-type study would be needed to determine the actual number of jobs per 1000 m^3 of wood volume in each sector of the forest industry. Natural Resources Canada released a working paper on the economic impact of transforming one thousand cubic metres of wood which compares various forest products. However, there is no regional breakdown and the figures have yet to be officially approved by the Canadian Forest Service.

The comparisons of economic benefits between the wood industries and the logging and paper and allied products is intended to establish the level of economic benefits that each sector of the forestry industry has on the economy of the Atlantic region. These economic benefits are calculated as a function of demand for products in the respective industries, which is why shipments are used as a basis for comparing employment and economic spinoffs in each sector. The gross production and employment multipliers are calculated based on demand by province and by industry.

Table 1 - Economic benefits of the wood, logging and paper and allied products industries in the Atlantic region, 1990-1995			
	Logging	Wood industries	Paper and allied products
Employees per $1 million in shipments[3]	13.2	10.7	4.6
Employment multiplier[4]	Nfld.: 1.71715 N.S.: 1.47346 N.B.: 1.49081	Nfld.: 1.39401 N.S.: 1.76582 N.B.: 1.84043	Nfld.: 2.06954 N.S.: 1.99767 N.B.: 2.49418
Gross production multiplier[5]	Nfld.: 1.67525 N.S.: 1.60610 N.B.: 1.57575	Nfld.: 1.53812 N.S.: 1.83262 N.B.: 1.76208	Nfld.: 1.62941 N.S.: 1.54793 N.B.: 1.76713

2.1 Employees per Shipments: With respect to employees per $1 million in shipments, the wood industries in the Atlantic provinces generated an average of 10.7 employees over the 1990-1995 period, more than twice the employment created by each $1 million of shipments in the paper and allied products sector. If we turn that equation around, we see that on average, over the 1990-1995 period, a demand of only $93 458 in shipments would be required to sustain one job, while the paper and allied products sector required over twice that amount at $217 391. Over the five year period, both industries experienced a downward trend in employment per million $ in shipments. It is interesting to note that logging has a higher number of employees per $1 million in shipments than the two other sectors. However, logging is not a competitor for the forest resource; it provides logs for the other two sectors. **(SEE APPENDIX B)**

2.2 Employment Multipliers: An analysis of the 1990 employment multipliers shows that the wood industries are not far behind pulp and paper in New Brunswick and Nova Scotia. Although the paper and allied products sector has the highest employment multiplier in Newfoundland, the wood industry probably shares in the indirect employment benefits of the logging industry because of the close linkages between the two sectors in Newfoundland, where many loggers also own small sawmills. In 1990, the breakdown of direct and indirect jobs for New Brunswick and Nova Scotia in the wood industry and the paper and allied products industry was as follows:

(1) **New Brunswick:**

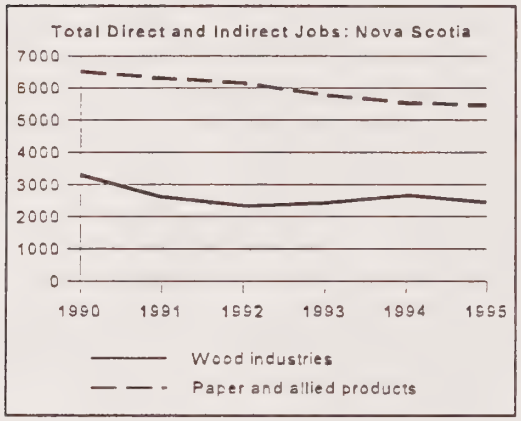
- Wood industries: 4,084 direct jobs + 3,432 indirect jobs = 7,516 total jobs
- Paper and Allied Products: 6,582 direct jobs + 9,835 indirect jobs = 16,417 total jobs

(2) **Nova Scotia:**

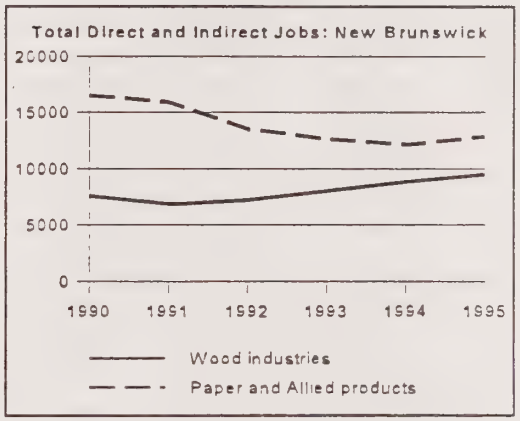
- Wood industries: 1,859 direct jobs + 1,424 indirect jobs = 3,283 total jobs
- Paper and Allied Products: 3,252 direct jobs + 3,247 indirect jobs = 6,497 total jobs

If we apply the 1990 employment multiplier to direct employment figures from 1991 to 1995, Graphics 4 and 5 illustrate a slight narrowing of the gap between total employment in the wood industries and the paper and allied products sector in Nova Scotia, from 3,213 jobs in 1990 to 3017 in 1995. In New Brunswick, the total employment gap between the two industries would have narrowed more dramatically from 8901 in 1990 to only 3337 in 1995. It would also appear that total employment in the paper and allied products sector has a greater fluctuation because of the nature of the pulp and paper industry and the higher employment multiplier. **(REFER TO PART 2: STATE OF THE INDUSTRY, SECTION 2.1: EMPLOYMENT)**

GRAPHIC 4



GRAPHIC 5



2.3 Gross Production Multiplier (GPM): The GPM for the wood industries is equal to the GPM of the paper and allied products in New Brunswick. In Nova Scotia, the GPM for the wood industries surpasses that of the paper and allied products. It is interesting to note that the GPM for logging is the highest for the three forestry sectors in Newfoundland. Again, this may be explained in part by the strong linkages between the logging industry and the wood products sector. In Nova Scotia and New Brunswick, based on the 1990 Gross Output Multiplier, the economic spinoffs for the economy would be as follows:

(1) **New Brunswick:**

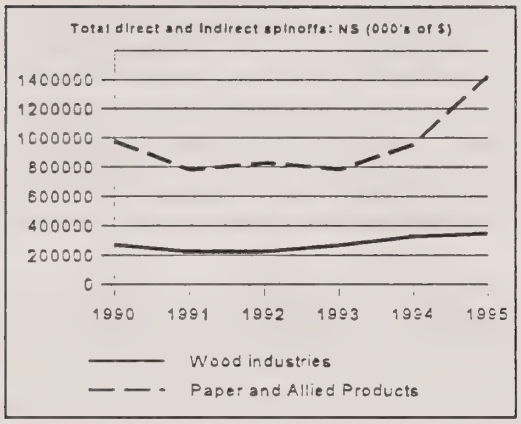
- Wood industries[6]: $449 million in shipments + $342 million of indirect benefits = $791 million in total economic benefits activity
- Paper and Allied Products[7]: $1,514 million in shipments + $1,161 million of indirect benefits = $2,675 million in total economic benefits activity

(2) **Nova Scotia:**

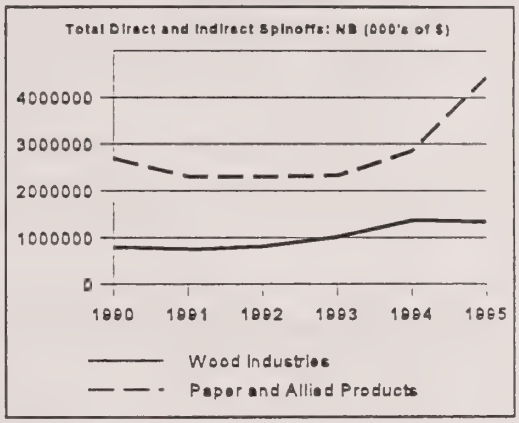
- Wood Industries[8]: $148 million of shipments + $123 million of indirect benefits = $271 million in total economic benefits activity
- Paper and Allied Products[9]: $630 million of shipments + $345 million of indirect benefits = $975 million in total economic activity

Applying the 1990 Gross Production Multiplier to 1991-1995 figures, Graphics 6 and 7 clearly demonstrate the fluctuations in economic benefits generated by the paper and allied products sector compared to the relative consistency of the wood industries. In New Brunswick, for example, the spinoff gap of $1.8 billion in 1990 would have shrunk to $1.5 billion in 1994 only to double to $3.1 billion in 1995 because of a surge in shipments in 1995. A similar trend was observed in Nova Scotia.. **(REFER TO PART 2: STATE OF THE INDUSTRY, SECTION 2.4: MANUFACTURING SHIPMENTS)**

GRAPHIC 6



GRAPHIC 7



3. PROVINCIAL PERFORMANCES

New Brunswick is the leader in terms of GDP per employee with over 13% more than Nova Scotia and almost 50% more than Newfoundland. New Brunswick also leads in shipments per establishment with over twice the average in Nova Scotia and Prince Edward Island, and total growth of over 70% over the 1990-1995 period. New Brunswick shared the best shipments to wages ratio with Nova Scotia in 1995. The employment multiplier is greater for the paper and allied products sector than for the wood industry, although there would tend to be a narrowing of the gap between total employment for two industries over the 1990-1995 period. The wood industry in New Brunswick has a GPM which is equivalent to the GPM of the paper and allied products sector.

Nova Scotia and **Prince Edward Island** lead the region in terms of growth in productivity ratios. Nova Scotia's GDP productivity increased by 20% over the 1990-1995 period. The shipments per establishment ratio also increased by over 50% and shipments to wages increased by over 30%. The Gross Production Multiplier is higher in that province than it is for paper and allied products. Growth in Prince Edward Island was strongest in shipments per establishment where growth was almost 170% over the five-year period, and in shipments to wages where growth was over 50%.

The sawmill industry in Cape Breton had been historically driven by demand for wooden support structures in coal mines. With the decline of the mining industry and the construction of the large pulp and paper mill in Port Hawkesbury, emphasis shifted toward pulpwood. However, Stora's new super-calendered plant will require less pulp wood, freeing up more wood for sawmills and secondary manufacturers.

Newfoundland's wood industry, on the other hand, is lagging behind the other provinces in Atlantic Canada in terms of productivity and economic benefits. All three productivity ratios declined between 1990 and 1995. Moreover , both the employment multiplier and the gross production multiplier are significantly less in the wood industry than in the logging and paper and allied products sectors. According to the Twenty Year Forestry Development Plan for Newfoundland, the nature of sawlog supply and the inefficient small production units are the two main reasons for the industry's low market share. However, over the past year, some pulp and paper companies have entered into a relationship with sawmills that may enhance the economic benefits from log usage.

Cost of production is an increasingly important measure of competitiveness. Widman's Wood Review estimates that Eastern wood manufacturers (including Ontario and Québec) are the lowest cost producers in North America at SUS 213/tbf (approximately SCAN 300), while other regions in Canada and the United States have an estimated cost of SUS 300-315 tbf.[10] A study by the New Brunswick Sub-Licensee Forestry Alliance found that mills producing less than a million fbm averaged $415 per Mfbm, while the larger mills producing more than 15 million fbm have an average cost per Mfbm of only $262. Another measure of competitiveness is the level of trade generated by the wood industries in Atlantic Canada, which includes product and market diversity. While exports of wood products from Atlantic Canada have risen sharply since the beginning of the decade, we will see in **PART 4** that the United States now makes up more than 90% of Atlantic Canada's export market and that lumber is the dominant export product. Environmental considerations such as sustainably managed woodlots and the inherent quality of the wood are also becoming competitive factors in the world marketplace.

4. FACTORS OF PRODUCTION

4.1 Raw Materials: In 1993 and 1994, the cost of raw materials represented between 70% and 80% of input costs in Atlantic Canada's wood industry. Input costs are values on a laid-down cost basis, including transportation, handling costs, taxes, duties, etc.

Therefore, lumber costs can be critical for manufacturers. While lumber prices remain relatively high, there was a 13% decline in lumber prices over the 12 month period from February 1997 to February 1998[11]. Other critical factors for manufacturers include grade, volume available, price and time period for delivery. **(SEE APPENDIX C)**

4.2 Labour: The wood industries are more labour-intensive than the two other sectors of the forest industry. In 1994, the wages per shipment ratio in the Canadian and Atlantic wood industries was at $0.18, while wages costs per shipments in logging and paper and allied products are $0.15 and $0.17 respectively. **(SEE APPENDIX D)** From 1990 to 1995, the wages to shipment ratio decreased from $0.23 to $0.19, a 17% change. Given the relative volatility of the market and the fluctuations in the supply of raw materials, secondary wood manufacturers require a flexible workforce. It should also be noted that the level of unionization is lower in the wood industry than in the paper and allied products sector. **(SEE APPENDIX E)**

Statistical evidence from Human Resources Development Canada suggests that wages and salaries in the forest industry may be being subsidized by the Employment Insurance program. Although figures are not available for the wood industry itself, the logging and forestry sector received 12.43 times more benefits than it payed out in premium contributions in 1994. During that same year, the manufacturing sector, under which wood industries are classified, received 4.37 times more in benefits than it contributed in premiums.

4.3 Capital: From 1994 to 1997 alone, capital investment in the Atlantic wood industries has grown by a total of 44.7% from $612.5 million to $886 million. Between 80% and 90% of capital investments were in machinery. **(SEE APPENDIX F)**

4.4 Government Assistance: Government has also provided financial assistance to wood products manufacturers. The federal government's policy affirms the government's commitment to promote value-added wood products manufacturers, as well as the importance of research and development. The Forest Industry Policy was strengthened in 1994 by targeting limited financial assistance for modernization and new capacity in value-added wood products manufacturing in four broad areas: small business, regional development, innovation and native business development. Other forms of government assistance in the Atlantic provinces consist of technical, market, and research support provided by public servants at both the federal and provincial levels in such institutions as ACOA, Industry Canada, Natural Resources Canada, the Business Development Bank of Canada and provincial departments of Economic Development and Natural Resources.

In light of the Canada-United States Bilateral Agreement on Softwood Lumber (BASL), the New Brunswick government has proposed a new policy on financial assistance to sawmills. Financial interest would be limited to working capital guarantees and non-subsidized interest bearing loans. No assistance would be given to new greenfield softwood mills or to existing mills engaged in the manufacture of products listed under the BASL. Financing will only be available to existing sawmills engaging in value-added activity. Such a policy would be difficult to apply in the three other Atlantic provinces because many mills aren't at the same stage of development as those in New Brunswick.

5. ISSUES AND OPTIONS

The wood industries in Atlantic Canada have a significant economic impact on the region, especially in terms of employment and economic spinoffs generated by shipments. One of the distinguishing features of the wood industries is its relatively consistent growth in total direct and indirect employment and economic spinoffs, compared to the paper and allied products sector. Such general stability in the Atlantic Canada's secondary wood industry allows for better planning and investment decisions. However, compared to national figures, productivity appears to be a problem for the region, particularly in terms of gross domestic product per employee and shipments per establishment.

La Scierie Adrien Arsenault in Balmoral, Northern New Brunswick, has modernized its facilities by expanding and adding a drying kiln that will increase its productivity by 20 to 30% from between 115, 000 and 125,000 board feet per day to between 140,000 and 160,000 board feet per day. The company, which has been in existence for over thirty years, employs 100 people directly and indirectly, and has a payroll of approximately $2.5 million.[12]

Atlantic Canada's competitive shipments to wages ratio may be attributable to the low wage level of employees in the region. As stated in *Part 2: The State of the Industry*, workers in Atlantic Canada's secondary wood industries earned almost $10 000 dollars less in 1995 than workers in the Canadian wood industry. Low-cost production can be an advantage when prices in the market are low, but low wages can have negative consequences in other areas, such as in attracting or keeping higher skilled employees in the Atlantic region or in maintaining the level of capital investments necessary to remain technologically competitive. Moreover, low wages translate into low value-added.

Low GDP per employee and low shipments per establishment, even if there is a high number of establishments in the Atlantic region, both reflect in low value shipment levels for the Atlantic region. Further analysis is required to identify approaches to improve Atlantic Canada's performance as revealed by these two productivity measures. While productivity ratios in the region as a whole remain low compared to those of Canada, the Atlantic provinces have considerably increased their own productivity over the 1990-1995 period. New Brunswick is the leader in terms of all three productivity ratios, but growth in productivity has been lead by Nova Scotia and Prince Edward Island. Between 1990 and 1995, Newfoundland, which lags behind the three Maritime provinces, lost ground on all three of its productivity ratios.

Given the varying circumstances from province to province, different approaches will be required to address the needs and challenges of the secondary wood industry in each of the Atlantic provinces.

APPENDIX A

Productivity Ratios of the Wood Industries in Atlantic Canada						
	NFLD	**PEI**	**NS**	**NB**	**Atlantic**	**Canada**
GDP/Employee						
1990	19863	n/a	23185	33448	28595	42404
1991	21200	n/a	22768	39946	32921	43555
1992	20260	n/a	27005	37071	32612	45667
1993	21120	n/a	26077	34621	30118	45617
1994	17842	n/a	25598	36193	31739	44254
1995	15957	n/a	28009	31785	29315	43454
Shipments/establishment						
1990	682128	751176	1585570	3164077	2141217	4343184
1991	894190	796571	1465518	3196316	2189176	4149278
1992	842946	1389923	1473119	3571366	2407243	4996610
1993	1147667	1774615	1976649	4397779	3120821	6593963
1994	1421462	1497273	2419027	5814818	4115193	8006552
1995	681615	2025000	2463857	5405079	3585313	8097875
Shipments/wages						
1990	3.63	3.02	4.12	4.49	4.31	4.15
1991	3.62	3.19	4.00	4.52	4.30	4.11
1992	3.73	5.38	4.12	4.64	4.49	4.42
1993	3.52	3.95	4.79	5.24	4.99	5.15
1994	3.11	4.70	4.76	5.99	5.52	5.59
1995	3.30	4.63	5.38	5.38	5.24	5.42

APPENDIX B

Average Number of Employees per $1 million in Shipments (Shipments are in 000's of $)[13]						
New Brunswick						
	Wood industry		**Paper and Allied Products**		**Logging**	
1990	4084/449,299=9.0		6582/1,514,167=4.3		5000/558,000=9.0	
1991	3695/425,110=8.7		6362/1,298,177=4.9		4000/492,000=8.1	
1992	3906/460,705=8.5		5412/1,299,244=4.2		3000/475,000=6.3	
1993	4350/576,109=7.6		5049/1,310,293=3.9		4000/461,000=8.7	
1994	4802/767,556=6.3		4863/1,605,453=3.0		4000/586,000=6.8	
1995	5166/751,306=6.9		5150/2,504,509=2.1		N/A	
	Six-year average=7.8		Six-year average=3.7		Five-year average=7.8	
Nova Scotia						
1990	1859/147,485=12.6		3252/629,766=5.2		3000/196,000=15.3	
1991	1467/121,638=12.1		3141/504,621=6.2		3000/198,000=15.2	
1992	1322/123,742=10.7		3065/533,815=5.7		4000/220,000=18.2	
1993	1369/146,272=9.4		2878/503,285=5.7		4000/206,000=19.4	
1994	1504/179,008=8.4		2762/615,366=4.5		4000/215,000=18.6	
1995	1371/189,717=7.2		2722/919,356=3.0		N/A	
	Six-year average=10.1		Six-year average=5.0		Five-year average=17.3	
Prince Edward Island						
1990	211/13,521=15.6		N/A		35/2600=13.5	
1991	158/11,152=14.2		N/A		39/3300=11.8	
1992	161/18,069=8.9		N/A		18/1700=10.6	
1993	328/23,072=14.2		37/6148=6.0		74/4200=17.6	
1994	172/16,470=10.4		35/6160=5.7		N/A	
1995	160/20,250=7.9		35/6733=5.2		N/A	
	Six-year average=11.8		Three-year average=5.6		Four-year average=13.4	
Newfoundland						
1990	438/32,060=13.7		N/A		2000/136,000=14.7	
1991	500/37,556=13.3		N/A		2000/133,000=15.0	
1992	385/31,189=12.3		N/A		2000/128,000=15.6	
1993	464/37,873=12.3		N/A		2000/141,000=14.2	
1994	482/36,958=13.0		N/A		2000/151,000=13.2	
1995	470/35,444=13.2		N/A		N/A	
	Six-year average=13.0				Five-year average=14.5	
Atlantic Canada						
	Atlantic	**NB & NS**	**Atlantic**	**NB & NS**	**Atlantic**	**NB & NS**
1990	12.7	10.8	4.8	4.8	13.1	12.2
1991	12.1	10.4	5.6	5.6	12.5	11.6
1992	10.1	9.6	5.0	5.0	12.7	12.7
1993	10.9	8.5	5.2	4.8	15.0	14.0
1994	9.5	7.4	4.4	3.8	12.9	12.7
1995	8.8	7.0	2.5	2.6	N/A	N/A
	Average: 10.7	Average: 9.0	Average: 4.6	Average: 4.4	Average: 13.2	Average: 12.6

APPENDIX C

The Cost of Inputs, 1993 and 1994[14] (Millions of $)										
	NFLD		PEI		NS		NB		CAN	
	1993	1994	1993	1994	1993	1994	1993	1994	1993	1994
Raw Materials	13.7 76.1%	13.8 73.8%	3.3 21.1%	7.9 78.2%	60.8 71.4%	77.8 75.2%	225.3 71.6%	336.7 78.9%	7589 72.1%	9359 74.1%
Containers	x	0.1	x	0.1	0.7	0.8	3.9	5.0	118.3	131.3
Supplies	0.9	0.9	0.7	0.5	3.8	5.8	18.5	23.1	687.8	786.8
Amount paid to other establishments	x	2.1	x	0.9	4.7	4.0	15.4	13.7	1024	1144
Total	18.0	18.7	15.7	10.1	85.1	103.5	314.8	426.9	10526	12627

APPENDIX D

Wages per Shipments Ratio, 1994: [15](Millions of $) Logging, Wood Industries, Paper and Allied Products			
Logging	Wood industries		Paper and allied products
145.7/957.5=$0.15	Atlantic 181.1/999.9=$0.18	Canada 4101/22907=$0.18	383.9/2220.9=$0.17

APPENDIX E

Wages per Shipment Ratio in the Wood Industries of Atlantic Canada, 1990-1995					
1990	1991	1992	1993	1994	1995
$0.23	$0.23	$0.22	$0.20	$0.18	$0.19

APPENDIX F

Gross Fixed Capital Formation [16] (1986 dollars)	
1994	61,255,100
1995	46,811,900
1996	92,626,100
1997	88,605,500

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THE WOOD INDUSTRY IN ATLANTIC CANADA: A FOCUS ON VALUE-ADDED

PART 4: PRODUCTS AND MARKETS

ATLANTIC CANADA OPPORTUNITIES AGENCY *NOVEMBER 1998*

TABLE OF CONTENTS

EXECUTIVE SUMMARY

INTRODUCTION

This paper is the fourth in a six-part series prepared by the Atlantic Canada Opportunities Agency (ACOA) in consultation with the governments of the four Atlantic provinces on the economic benefits and opportunities that exist in the value-added wood products industry in the Atlantic provinces. While maintaining a focus on the value-added aspects of this sector, the series will examine the following aspects of the industry: State of the Resource; State of the Industry; Productivity and Economic Benefits; Products and Markets; Trade and Regulation; and Needs, Challenges and Targets.

This fourth report is intended to provide an outlook on the main products in the secondary wood industry in Atlantic Canada, Canada and the United States. By examining established products that aren't yet being manufactured in the Atlantic region and new product trends that are emerging on the world market, this report seeks to identify opportunities to develop new products in the Atlantic provinces. The market analysis describes some of the forces that act on the wood products industry in Atlantic Canada.

SUMMARY

The composite and solid wood products are the two main divisions in secondary wood products. Composites consist primarily of panels and engineered lumber components. The four main categories of solid wood products are softwood lumber, glued, treated and hardwoods. The Centre for Advanced Wood Processing estimates that slightly more than half of production in New Brunswick and Nova Scotia sawmills is made up of dimension lumber, while studs make up another 35%. These two types of wood products are at the low end of the value-added chain, which consists of primary, intermediate and final stage wood products based on the level of manufacturing. New trends in products include kiln and vacuum drying, engineered wood products, forest certification and "green" products, and value-activation.

Dimension lumber is the Atlantic region's dominant wood product export, with other major products including particleboard and fibreboard, furniture components and builders joinery The United States dominates export markets, with over 90% of Atlantic Canada's exports of wood products. The Canada-U.S. bilateral agreement on softwood lumber and the continued depreciation of the Canadian dollar against the American dollar have helped boost exports to the United States. There has also been a significant shift in the end-use of lumber on the American market with a rapidly increasing market share for repair and remodelling, which now accounts for 31% of the U.S. market.

CONCLUSIONS

Given the strong reliance on the Canadian and American markets and the predominance of lumber as an export product, market diversification may be needed to sustain the growth of wood product exports from the Atlantic region. Emphasis should be placed on higher value-added products and niche markets.

PART 4

PRODUCTS AND MARKETS

1. PRODUCTS

1.1 A Taxonomy of Wood Products: There is a great variety of secondary manufactured wood products and new products are constantly being developed. **(SEE APPENDIX A)** It is for this reason that various taxonomies of wood products have been conceived over the past number of years. One of the latest variations is the taxonomy conceived by Cohen, Ellis, Kozak and Wilson for the Canadian Forest Service. As seen in Appendix B, this method of labelling wood products creates two large divisions in the family of products: composite and solid wood products.

Royalty Hardwoods of Prince Edward Island produces mainly kiln-dried lumber and manufactured products such as hardwood floors and furniture components. The company gets most of its wood shipped in from Nova Scotia and New Brunswick because of poor supply and quality on the Island. According to a company representative, the area where there is the most potential for production on P.E.I. is in furniture components, and better utilization of White Birch and Long-toothed Aspen.

Composites consist primarily of panels and engineered lumber components. Panels can be made up of wood and non-wood combinations, such as wood and cement, or they can be wood-based panels such as Oriented Strand Board. With regards to solid wood products, there are four broad categories: Softwood lumber, glued, treated and hardwoods which can consist of flooring, pallets and/or veneer. According to a 1997 study commissioned by the Centre for Advanced Wood Processing, dimension lumber accounted for slightly more than half of production in the sawmills New Brunswick and Nova Scotia, while studs made up another 35% of production. Boards accounted for another 11% of production, while timbers was the only other category to make up more than 1% of production. Other products included clears, carcassing, siding, finger jointing and hardwoods.

There are generally two broad categories of hardwood products: (1) sawnwood and (2) plywoods and veneers. Sawnwood generally refers to lumber, but can also include timbers, cants, flitches and bolts. Hardwood lumber is marketed in one of three categories: finished market products, dimension parts and factory lumber. Hardwood veneers are produced either by slicing flitches or by rotary cutting whole logs on lathes. They are typically used as decorative surfaces for lower quality wood or mouldings, decorative inlays which require contoured or bent wood.[1] **(SEE APPENDIX B)**

Catou Kilns Ltd. is a family-owned business based in Cape Breton. The company's forte is in producing quality hardwood lumber. Business operations involve purchasing and custom-drying dimensional lumber. The annual capacity of the plant is 400,000 bdft of high quality lumber. The facility consists of two dry-kilns and a re-manufacturing operation. The identified markets for their products are Eastern Canada, the New England States and the European flooring and furniture industry.

1.2 The Value-added Chain: Wood products are also identified by the level of manufacturing or value-added for different products. This is what is known as the value-added chain. The value-added chain for wood products is defined by three main manufacturing categories: primary, intermediate, and final. Log products require very little manufacturing and include products such as poles, shakes, shingles and treated poles, but these products are not considered wood products per se. Primary products such as timber, lumber and flitches have the least value-added on the chain. For the purposes of this report and considering the nature of the wood products industry in Atlantic Canada, dimension lumber will be considered a manufactured wood product.

Intermediate products require more manufacturing and include edge-glued, furniture and laminated components, finger-jointed stock, pallets, medium density fibreboard and particle board. Other intermediate products include door and window stock, as well as sawmill specialty components. Wood products at the final stage have the most value-added. However, there are varying levels of value-added in the final phase of manufacturing. The first level consists of re-manufactured products such as sawmill specialty products. The next phase is composed of pallets and containers. Engineered building components such as trusses and prefabricated homes make up the third phase. The fourth phase consists of millwork such as doors, windows and flooring, while the phase with the most value-added is in cabinets and furniture. **(SEE APPENDIX C)**

Shaw Wood, a division of Shaw Group Limited, has announced plans to produce ready-to-assemble furniture on the former military base CFB Cornwallis. The Nova Scotia- based company will become an advanced intermediate level producer by supplying IKEA with pine products for the world market. The first finished products are scheduled for completion in September 1998 but production will not peak until 1999.[2]

1.3 Exports of Existing Products: (SEE APPENDIX D)

Atlantic Canada: Given that New Brunswick is Atlantic Canada's largest exporter of wood products, the export trend of the region over the 1992-1997 period strongly reflects the trend in New Brunswick. Lumber was the main export product in every year of the five year period. Lumber alone represented an average of 70% of total wood product exports over the period, ranging from 63% in 1995 to 73% in 1994. The region's other main wood exports include particleboard and fibreboard, furniture components and builders' joinery. Another category of product which consistently ranked among the top five exports is "Other articles of wood" which includes the following products: clothes hangers and other household items, box, crate and package shook, and other manufacturing input models and patterns of wood, match splints, coffins and caskets, fencing, dowel pins and wooden signs.

Based on information gathered from provincial governments and provincial manufacturing directories, there are a total of 197 or 30% of establishments in Atlantic Canada which export outside of the country. Many others export only to other Canadian provinces.

Newfoundland: The types of export products from Newfoundland vary greatly from one year to the next. In 1992, the main products were ties, with 41.3% of exports. In 1993, doors and windows of wood, and lumber were the main products with 36.7% and 19% of exports. In 1994, prefabricated buildings dominated exports with 94.5% of totals. In 1995, chips and sawdust accounted for almost half of exports, while in 1996, lumber made up over three quarters of exports. Slightly more than half of exports in 1997 consisted of doors, their frames and wood structures, with another significant portion consisting of lumber. Other products include logs, poles and timbers, particleboard, waferboard and fibreboard, trailers and mobile homes, cabinets, furniture and furniture parts, marquetry and inlaid wood, caskets and shooks of wood for boxes and crates. According to the 1997-1998 Manufacturers' Directory of Newfoundland, there are a total of 9 companies in the wood products sector which export outside of the province, with 3 of those companies exporting only to other Canadian provinces, 1 exporting only to the United States, another exports only to other provinces and the Unites States, 3 exporting only to foreign countries other than the U.S. and 1 exporting to other provinces, the U.S. and other foreign countries.

Surtreen Hardwoods and Moulding Ltd. o f Hawkes bay is establishing an integrated hardwood sawmill to produce birch flooring , wainscotting, hand railings and mouldings. The company's president, Michael Sinnicks thinks that the Great Northern Peninsula has a substantial supply of hardwood. He believes that there is a wide open market for Newfoundland birch flooring and he's hoping to penetrate that market with their products.

Prince Edward Island: The types of export products from Prince Edward Island were more consistent from year to year. For example, lumber was the main export product from P.E.I. for every year from 1992 to 1997 except for 1994, during which logs, poles and timbers were the main exports. In every year except 1994, lumber accounted for more than half of total exports from the island. Other products included cabinets, furniture and furniture parts, ties, doors and windows of wood, mouldings and siding, cabinets, particleboard and waferboard, seats, veneer, and prefabricated buildings. The government of Prince Edward Island has identified a total of 11 wood manufacturing companies which engage in export activity. Five (5) of these companies export only to the U.S. Three (3) other companies export only to the U.S. and other foreign countries, while the three (3) remaining companies export only to one other foreign country, namely Japan. The government has also identified export potential in fifteen (15) other companies.

The *Atlantic Canada Home Program* was launched in 1995 as a cooperative promotional program by government and industry to open up new markets for Atlantic Canadian Building Products in Japan. In early 1997, two PEI companies were chosen to provide the materials, builders and know-how for Phase I of a home development complex. In April of that year, the consortium of 25 companies formed a not-for profit organization called *Atlantic Canada Home Inc.* (ACHI). At that point in time, sales totalled $581,000 and orders totalled $3.5M.

Nova Scotia: In 1992, 1995, 1996 and 1997, lumber was the primary export wood product from Nova Scotia. In those years, lumber accounted for well over half of total exports. Fibreboard was the most valuable export wood product for Nova Scotia in 1993 and 1994 with slightly less than half of exports in those years. 1995 was a mixed year, with lumber accounting for over a quarter of exports, cabinets, furniture and furniture parts making up 22.9% of the total, and fibreboard accounting for another 20.9% of total exports. Other export products include wooden doors and windows, caskets, logs, poles and timber. According to the 1996-1997 Directory of Manufacturers of Nova Scotia, there is a total of ninety-three (93) companies in the wood products sector which ship outside of the province. Many of those companies (43%) export only to other Canadian provinces, two (2) export only to the United States, fourteen (14) export only to other provinces and the US, seven (7) export to foreign countries other than USA, six (6) export to other provinces and foreign countries other than the US, while the remaining twenty-four (24) export to other provinces, the U.S., as well as other foreign countries.

New Brunswick: Lumber was by far the most lucrative export wood product for New Brunswick from 1992 to 1997. In each of these years, lumber accounted for 70% to 80% of exports from New Brunswick. Other major export products include shooks of wood for boxes and crates, particleboard and windows of wood, which all rotated between second and third positions during the five-year period. Rounding out the five major export products from New Brunswick are cabinets, furniture and furniture parts, logs, poles and timber, and doors, frames and structures. According to New Brunswick's 1997 Directory of Manufacturers and Selected Services, there are a total of 141 companies from that province's wood industry which export outside of Canada. **(SEE APPENDIX D)**

1.4 <u>New Trends in Products</u>: As in any rapidly expanding industry, manufacturers in the wood products sector are seeking new ways to extract more value from the wood that they use and new products in order to reach new markets. One process that has been used increasingly in the Atlantic region is kiln-drying.

A more detailed analysis of the equipment and technology used in each province is needed in order to determine each province's technological needs.

Kiln-drying: Kiln-drying allows wood to be preserved and stored for longer periods of time and reduces transportation costs. The practice is particularly strong in New Brunswick and some parts of Nova Scotia. Vacuum drying is a process which has just been recently introduced in Canada through Forintek. Under a vacuum, water caught in the wood boils at a lower temperature and is condensed out of the wood. The advantages of this process are that it reduces drying time and is more energy efficient.[3] The 1997 study commissioned by the Centre for Advanced Wood Processing estimated that 50% of mills in Nova Scotia and New Brunswick have dry kilns, resulting in approximately 76% of lumber from these provinces being dry-kilned. Prince Edward Island and Newfoundland may not have yet reached that level.

Engineered Wood Products: Engineered wood products (EWP) are having a growing impact on lumber markets. Since 1995, EWP have risen from 2.8% to 3.6% of North American lumber supply, with forecasts calling for 4.6% in 1998. Although classifications may vary, the main EWP include GLULAM or glue-laminated beams, laminated veneer lumber and I-Joists. The major advantages of engineered products are price stability and better utilization of low quality wood.[4]

Forest Certification: Forest certification has emerged as a result of public concerns over the sustain ability of forest management. Pressure for certification of sustainable managed forests started in European countries where environmental sensibilities are most acute. Wood and forest products from certified forests are labelled "green" products and can command a premium on some markets. Organized buyers groups in Europe and more recently in the United States are able to force large manufacturers to buy wood from certified forests. Certification has yet to become a major issue in Atlantic Canada. However, larger companies such as Irving have encountered buyers who insist on "green" products. Several forest industry firms in the Atlantic region are attempting to have their forests certified. *A Better Choice Certified Forest Products* in NB was the first in Canada and the third in North America to be acknowledged as a broker/distributor of certified forest products by the Forest Stewardship Council's Smart Wood Program.

In June 1998, a committee composed of environmentalists, small woodlot owners, large forest companies, community groups and natives met in Truro, NS to present a series of standards that N.B., N.S. and P.E.I. loggers would have to respect in order to be certified green by the Forest Stewardship Council.[5]

Value-activation: Value-activation is another new concept intended to add value to wood products through a better understanding of wood's natural properties. One value-activation technique is star-sawing which yields more and better wood from any given tree by yielding six standard dimension rectangular blocks and six finger jointed wedge-shaped blocks. The quality of the wood product is enhanced by the removal of the pith and juvenile wood as well as the reduction of warping through radial cuts.

2. WOOD AND LUMBER MARKETS

There are many actors in the wood products market in Canada, the United States and around the world. They include wholesalers, retailers, agents or brokers, and industrial users. The following information is taken from the 1997 study commissioned by the Centre for Advanced Wood Processing. It is interesting to note that agents, brokers and wholesalers account for more than half of production in Nova Scotia and New Brunswick. This is probably due to the small size of mills:

- Wholesalers or merchants account for approximately 26.3% of wood production in Nova Scotia and New Brunswick. Wholesalers will take possession of the lumber but will not resell it directly to the customer. Since merchants take title to the lumber, it is difficult to track the exact amount of lumber leaving the region and the country;

- Retailers handle approximately 33.4% of wood production in Nova Scotia and New Brunswick. Retailers, including the big-box retailers like Home Depot and Kent Building Supplies, will take possession of the lumber and sell it directly to the end-user;

- Agents or brokers represent approximately 23.4% of wood production in Nova Scotia and New Brunswick. They do not take possession of the wood, but will act as negotiators for sales between producers and other parties, for a commission; and

- Industrial users, who make up 16.9% of the market, will purchase lumber for further processing of the wood, or for use as a component for a product or equipment used in their primary activities. Industrial users include mines, the fisheries, agriculture, packaging, tourism and transportation, pressure treatments, wood manufacturing and re-manufacturing.

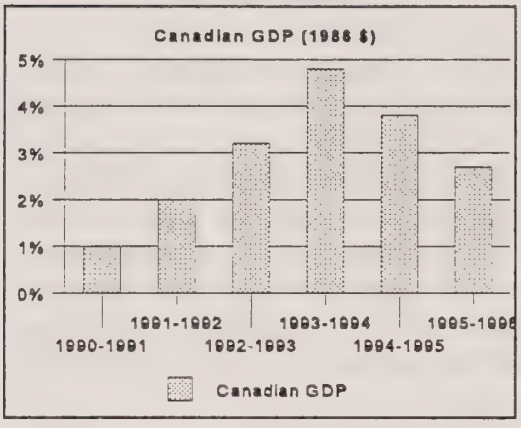
Factors influencing market strength in the secondary wood industry in Atlantic Canada include GDP growth, the value of the Canadian dollar, the value of building permits, lumber end-use and environmental factors. Because of heavy reliance on the American export market, economic trends in the United States will also be examined. Although export markets account for a growing proportion of shipments from Atlantic Canada, it should be noted that over half of shipments from the region remain in Canada.

2.1 Export Markets: Throughout the entire 1992-1997 period, the United States and the United Kingdom respectively remained the first and second export destinations for wood products from the Atlantic provinces. The United States increased its dominant share of Atlantic Canada's export markets from 77.9% in 1992 to 96.2% in 1997. At the same time, exports to the United Kingdom declined from a 16.4% share in 1992 to less than 1% in 1997. The third position switched from Ireland in 1992, to Turkey in 1993, to France including St-Pierre et Miquelon in 1994, 1995 and 1996, and finally to Hong Kong in 1997. The third export destination never exceeded 1.6% of the export market. Other export markets for New Brunswick and Nova Scotia included Germany, Ireland, Bahrain and the United Arab Emirates. Top export destinations for wood products from Prince Edward Island and Newfoundland included Iceland, Sweden, Poland, Japan, Italy, Costa Rica, the Netherlands, Switzerland, South Korea and Norway.

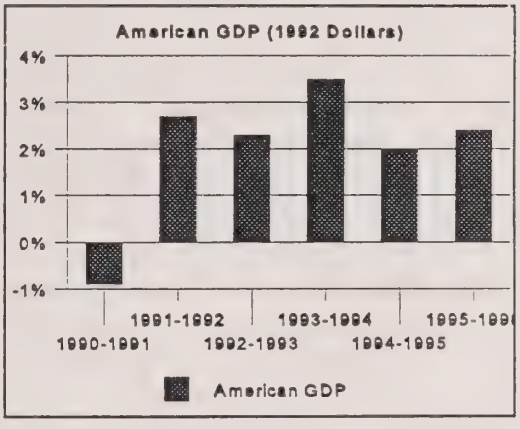
On the national level, the top three export markets for wood products were, the United States, Japan and the United Kingdom throughout the five year period between 1992 and 1997. The proportion of exports to the United States ranged from 72.6% in 1992 to 81.5% in 1997. Japan maintained a steady share of Canada's export that remained in the 12% to 15% range. Exports to the United Kingdom declined from 4% of total exports to only 1%. **(SEE APPENDIX E)**

2.2 Canadian and American GDP[6]: After reaching a high of 4.8% growth between 1993 and 1994, the GDP in Canada, as seen in Graphic 1, has declined to 2.7% in 1995-1996. The Conference Board of Canada has estimated GDP growth in 1997 to be approximately 3.1% and 2.8% in 1998. As demonstrated in Graphic 2, the American GDP has been less consistent, but it has been holding between 2% and 3% growth since the end of the recession in the early 1990's.[7] Forecasts call for a steady 2.7% in 1998. While GDP is not a direct measurement of demand for wood products, it does indicate strength in the marketplace. If GDP growth in North America remains steady over the next few years, demand growth for wood products should also remain relatively steady.

GRAPHIC 1



GRAPHIC 2

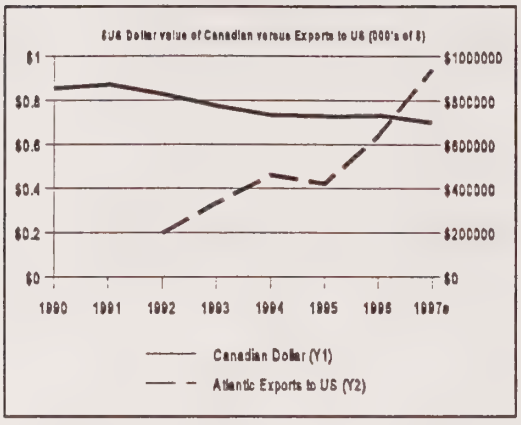


2.3 Canadian Dollar[8]: Again, given the high degree of reliance of Atlantic Canadian exports on the American market, the value of the Canadian dollar against the American dollar can also have a considerable impact on the level of shipments and exports of wood products coming from Atlantic Canada. In fact, the 1992-1996 period in Graphic 3 highlights the dollar's 11.4% depreciation from $US 0.8271 to $US 0.733. During this same period, exports of wood products from the Atlantic provinces increased by a total of 179.5%. To a lesser extent, the same can be said for Atlantic Canadian exports to the United Kingdom. In a year when the value of the

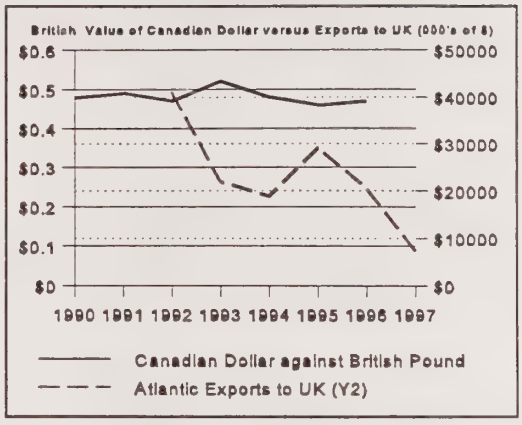
The value of the Canadian dollar on international markets is far from being the most influential factor in determining the value and destination of exports. Since the late eighties and early nineties, the decision of the European Union to only import kiln-dried wood because of the pine wood nematode and lumber demand created by natural catastrophes in the United States have both had a significant impact on the export of wood products from the Atlantic provinces.

Canadian dollar rises against the British Pound, exports decline dramatically. In a year when the value of the Canadian dollar lowers against the Pound, the level of exports from the Atlantic region increases.

GRAPHIC 3

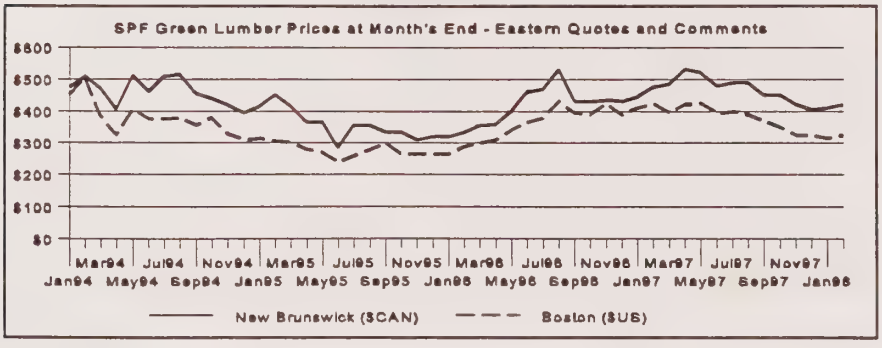


GRAPHIC 4



2.4 Wood and Lumber Prices: According to Widman's Wood Review and as illustrated in Graphic 5 [9], after significant decreases in 1994 and 1995, lumber prices started picking up in early 1996 to mid-1997, but are now at their lowest levels since the first quarter of 1996. Figures in the Wood Products Group Bulletin confirm this trend. On the NB market, prices for the bellwether SPF Dimension 2X4 were $CAN 530 in April 1997 and $CAN 420 in February 1998. On the Boston Market, prices were $U.S. 420 in July 1997 and $US 325 in February 1998. These reductions in lumber prices have been attributed to over-supply in the market, but economic indicators such as GDP also show that overall demand in the North American economy isn't as high as in the 1993-1994 period.

GRAPHIC 5



2.5 Building Permits: The value of building permits in Canada can also have an influence on the strength of the market for wood products, especially if Canada has experienced similar shifts in lumber end-use as in the United States. In February 1998, building permits for non-residential construction reached its highest level in almost 8 years. This jump, combined with a much smaller rise in residential intentions, helped to push the overall total for building permits in February 98 to over $2.9 billion, also nearly an 8 year high. The value of building permits for the housing sector rose slightly in the first quarter of 1998 due to a robust increase in March when the highest monthly value in almost 7 years was recorded.[10] Wood products in general, but especially engineered wood products, stand to gain from this surge in construction because of their increasing share in the North American lumber market.

A study entitled *Softwood Lumber Substitutes in the US Residential Construction Industry* found that builders believe that substitute products, including concrete, steel and engineered wood products, cause fewer adverse environmental effects than lumber does. Of the survey respondents, 92% had used at least one substitute product and about 85% had experience with two substitute products. Contractors gave positive ratings to only two lumber attributes - strength and availability. Respondents to the survey were dissatisfied with lumber straightness, the number of lumber defects, the overall lumber quality and the instability of lumber prices[11].

2.6 Changes in End-use of Lumber: There has been a significant shift in lumber end-uses over the past twenty years, with an increasing market share for repair and remodelling which now accounts for 31% of the US market, as opposed to housing which has gone from 44% of the market share in 1977 to 37% in 1997[12]. This shift in demand will have repercussions on the type of wood products demanded. An increase in demand for repair and remodelling should have a positive effect on specialized and engineered wood products. While precise figures on the end-use of lumber in Canada are not available, it is possible to compare total expenditures on residential permits to total expenditures on renovations and repairs. Expenditures on renovations in Canada reached a high of $13.8 billion in 1989, yet fell by a total of 9.8% from 1990 to 1995. Over the same period, total expenditures on residential permits decreased by 24.1%. Although both indicators have fallen since the recession in the early 1990's, the decrease has been less pronounced in renovations.

3. ISSUES AND OPTIONS

Given the importance of shipments and exports, exchange rates, in particular the value of the Canadian dollar against the American dollar, the level of building starts in Canada and the U.S. and shifts in the end-use of lumber are major issues for the wood products industry of the Atlantic provinces. We have seen that there is a strong reliance on demand in the American market, with over 90% of exports from Atlantic Canada destined for the United States. Fluctuating exchange rates also call to attention the ability of small

companies to adjust and to survive difficult market conditions. Heavy reliance on the American market could also become a future issue of concern, should that particular market weaken. Diversification of export markets for the Atlantic provinces may be needed to sustain the growth of exports from the region.

With the preponderance of lumber as an export product, there may also be a need to diversify the wood product line of the Atlantic region. Based on the types of export products leaving the region, most wood manufacturers in Atlantic Canada would be found in the primary to intermediate categories of manufacturing, with a growing number of companies moving into the intermediate to final stages of production. Product-development opportunities need to be created within the industry in order to allow manufacturers from the region to access emerging niche markets in Canada, the United States and around the world, especially considering the growing acceptance of substitute products such as engineered wood products and the changing end-uses of lumber in the Canadian and American markets.

It is in this perspective that the linkages between the viability of value-added manufacturers and the production levels of primary processors should be more closely examined. In order to develop a better match between primary processors and secondary manufacturers, the role of intermediaries in the wood products market should be examined more closely. The role of municipal, provincial and federal governments should also be more clearly defined so that they may aid and enable sawmill owners and secondary manufacturers to develop and promote their wood products in the marketplace.

APPENDIX A

DEFINITIONS OF VARIOUS WOOD PRODUCTS[13]

WOOD / NON-WOOD PANELS

Wood/Cement Composites: A structural panel product produced by adhering wood elements together with a mineral-based binding agent (such as Portland cement) under pressure.

WOOD-BASED PANELS

Oriented Strand Board (OSB): An engineered structural wood based panel composed of wood strands, flakes, or wafers bonded under heat and pressure with a waterproof resin. Unlike Waferboard (where furnish is randomly oriented throughout), the furnish in OSB is aligned in the panel direction on the surface layers and either cross-aligned or randomly oriented in inner layers.

Medium Density Fibreboard (MDF): A non-structural and homogeneous wood-based panel composed of randomly arranged wood fibres bonded together under heat and pressure.

Particleboard: A non-structural panel product produced by bonding small wood together with a resin under heat and pressure.

Softwood Plywood: A structural panel made up of softwood veneer layers glued under heat and pressure, with the grain direction of each adjoining layer being set at right angles to one another.

ENGINEERED LUMBER COMPOSITES

Laminated Veneer Lumber: An engineered wood product composed of layers of scarf-jointed veneer glued together under heat and pressure with the grain of each veneer running parallel to the longitudinal axis of the billet.

Oriented Strand Lumber: Sometimes referred to as reconstituted lumber or parallel strand lumber, it is produced by aligning long strands of wood in parallel and binding them together using adhesives, pressure and heat.

SOFTWOOD LUMBER

Dimension Lumber: Softwood lumber with a nominal thickness of 2 to 4 inches, and a nominal width of 2 inches or more, including studs.

Boards: Lumber with a nominal thickness less than two inches, but a width of 2 or more inches.

Machine Stress Rated Lumber (MSR): Structural lumber that, in addition to meeting visual grading requirements, has been tested by mechanical stress-rating machinery to determine the modulus of elasticity (the amount of stiffness in the lumber).

Timber: Structural softwood lumber which is greater than 5 inches in its smallest dimension.

GLUED WOOD

Finger Jointed Lumber: Lumber produced by a mechanical system which cuts fingers in each end of the lumber stock (joints) and glues the pieces together to extend the length, reduce defects and increase straightness.

Edge Glued Panels: A non-structural product made of relatively narrow pieces of wood glued along their edges (sides or faces) to produce panels of greater widths.

Glue Laminated Timber: An engineered structural product composed of lumber pieces glued together such that the grain of all laminations runs parallel to the longitudinal axis of the product.

TREATED WOOD

Preservative Treated Wood: Lumber treated with chemicals (typically chromated copper arsenate or CCA) or other liquids to reduce the susceptibility of decay and deterioration due to fungal/insect attack.

HARDWOODS

Hardwoods: Pertaining to the large family of wood products (sawnwood, plywoods, veneers) that are manufactured from deciduous trees.

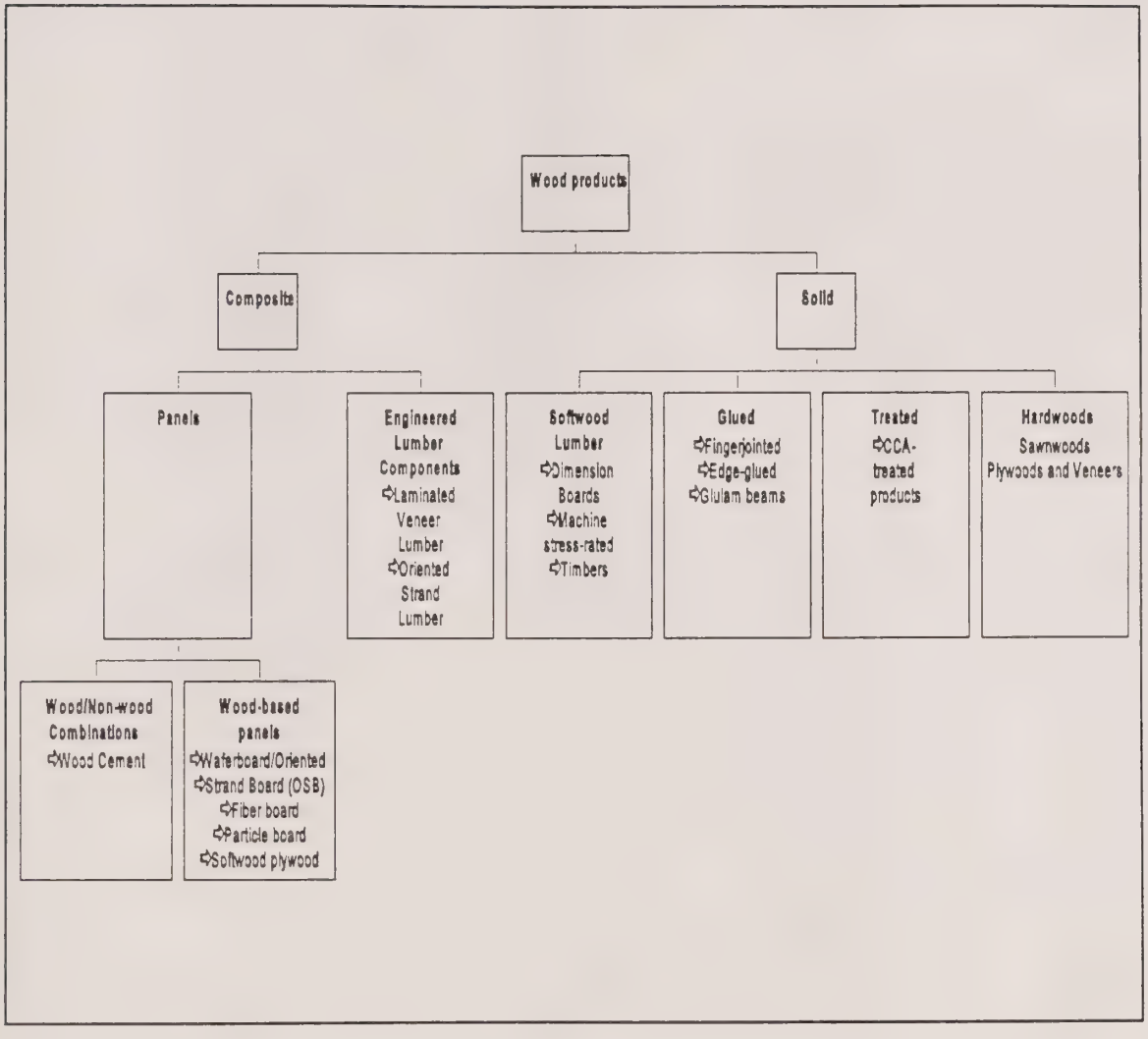
ENGINEERED WOOD PRODUCTS

I Beams: An engineered structural product made by gluing a web of structural panel product (plywood, OSB) between two flanges of structural wood product (lumber, LVL, OSL) in the shape of an "I".

Trusses: An engineered structural wood product which is a framework composed of a series of smaller wood pieces (chords and webs) arranged and fastened together (by steel truss plates) such that external loads are transferred to truss supports.

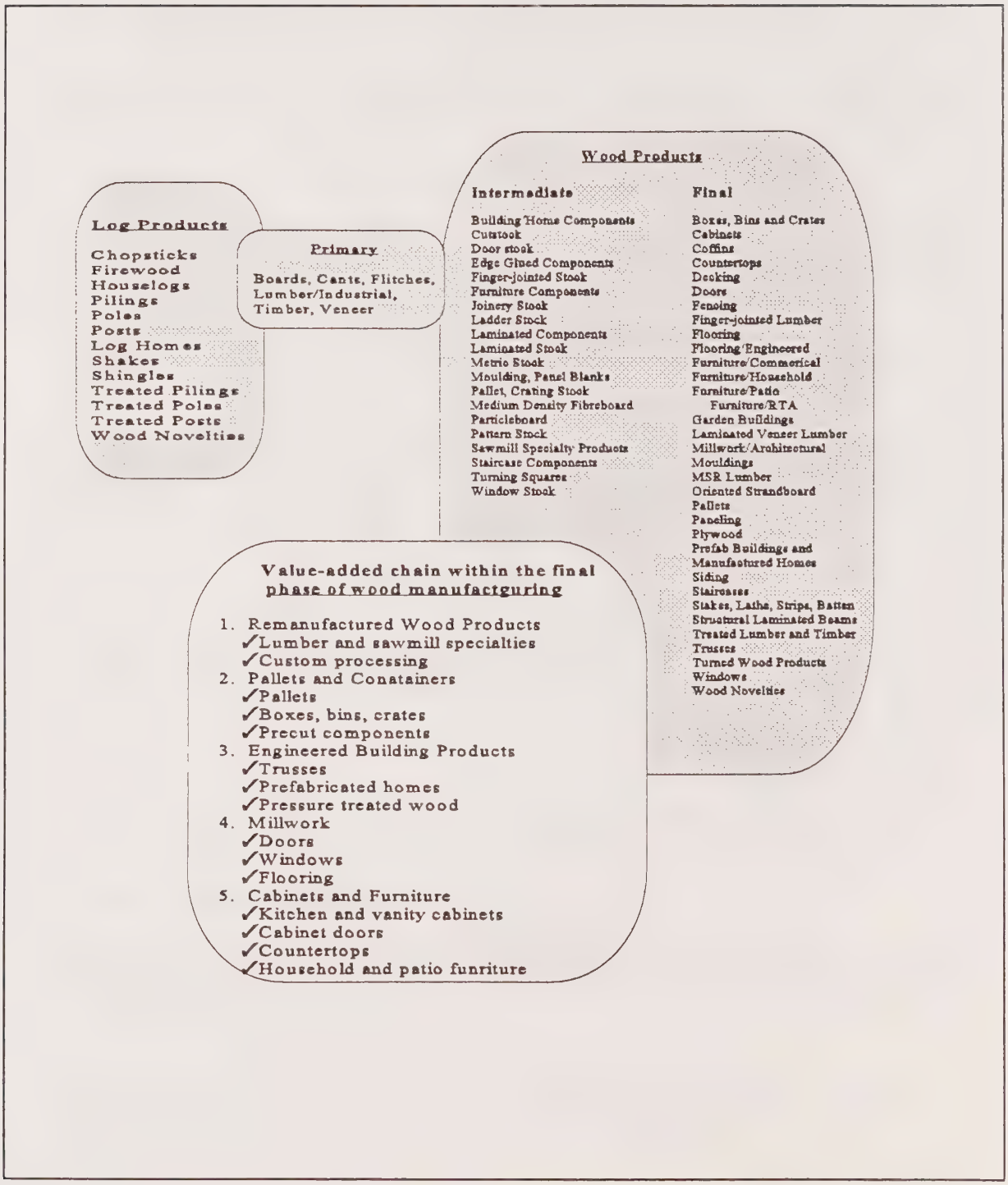
APPENDIX B

A TAXONOMY OF WOOD PRODUCTS



APPENDIX C

THE VALUE-ADDED CHAIN[14]



APPENDIX D

Products Exported from the Atlantic Provinces, 1992-1997[15] (000's of $)					
	NFLD.	**P.E.I.**	**N.S.**	**N.B.**	**Atlantic**
1992	Ties: 865 Lumber: 378 Roundwood: 177 Wooden doors and windows (Plastics): 79 Particleboard: 57 **Total: 2094**	Lumber: 176 Furniture components: 26 Ties: 16 Wooden doors and windows (Plastics): 14 Frames of wood: 3 **Total: 238**	Lumber: 26,599 Fibreboard: 11,983 Furniture components: 8855 Frames of wood: 1874 Round wood: 1004 **Total: 54,537**	Lumber: 144,320 Other wood articles: 15,919 Particleboard: 11,997 Builder's joinery: 5730 Plywood: 4393 **Total: 194,316**	Lumber: 171, 473 Other wood articles: 15,919 Particleboard: 12,054 Fibreboard: 11,983 Furniture components: 8881 **Total: 251,185**
1993	Wooden doors and windows (Plastics): 281 Lumber: 146 Fibreboard: 102 Trailers: 71 Furniture components: 62 **Total: 766**	Lumber: 457 Builder's joinery: 98 Wooden doors and windows (Plastics): 26 Shaped wood: 25 Furniture components: 22 **Total: 660**	Fibreboard: 17,385 Lumber: 14,425 Furniture components: 7405 Round wood: 4150 Frames of wood: 1808 **Total: 53,645**	Lumber: 254,421 Particleboard: 16,933 Other wood articles: 15,049 Furniture components: 7582 Builder's joinery: 5715 **Total: 313,716**	Lumber: 269,449 Fibreboard: 17,487 Particleboard: 16,933 Furniture components: 15,071 Other wood articles: 15,049 **Total: 368,787**
1994	Prefabricated buildings: 2933 Lumber: 59 Furniture components: 34 Frames of wood: 17 Marquetry: 7 **Total: 3101**	Roundwood: 1324 Lumber: 659 Furniture components: 131 Particleboard: 70 Wooden doors and windows (Plastics): 56 **Total: 2317**	Fibreboard: 19,305 Furniture components: 10,841 Lumber: 19,760 Frames of wood: 3744 Round wood: 4604 **Total: 66,235**	Lumber: 335,830 Particleboard: 19,030 Builder's joinery: 15,900 Other wood articles: 13,865 Furniture components: 12,156 **Total: 422,888**	Lumber: 356,308 Fibreboard: 19,308 Particleboard: 19,100 Builder's joinery: 15,900 Other wood articles: 13,865 **Total: 494,541**
1995	Fuelwood: 766 Wooden doors and windows (Plastics): 284 Prefabricated buildings: 144 Lumber: 115 Wooden door and window frames (Aluminum): 67 **Total: 1582**	Lumber: 2176 Roundwood: 590 Wooden doors and windows (Plastics): 147 Seats: 79 Frames of wood: 69 **Total: 3221**	Lumber: 20,994 Furniture components: 18,246 Fibreboard: 16,663 Roundwood: 5518 Burial caskets: 4356 **Total: 79,634**	Lumber: 273,967 Builder's joinery: 23,691 Other wood articles: 23,423 Particleboard: 21,462 Furniture components: 12,383 **Total: 389,336**	Lumber: 297,252 Builder's joinery: 23,691 Other wood articles: 23,423 Particleboard: 21,412 Furniture components: 30,629 **Total: 473,773**
1996	Lumber: 1220 Furniture components: 123 Burial caskets: 61 Frames of wood: 59 Builder's joinery: 23 **Total: 1584**	Lumber: 4234 Wooden doors and windows (Plastics): 967 Veneer: 190 Furniture components: 221 Roundwood: 124 **Total: 6117**	Lumber: 80,484 Fibreboard: 19,292 Furniture components: 16,216 Frames of wood: 7289 Roundwood: 3944 **Total: 141,420**	Lumber: 384,569 Other wood articles: 27,078 Builder's joinery: 21,933 Particleboard: 19,601 Frames of wood: 18,580 **Total: 537,814**	Lumber: 470,507 Other woodarticles: 27,078 Builder's joinery: 21,933 Particleboard: 19,601 Fibreboard: 19,262 **Total: 686,935**
1997	Frames of wood: 9288 Lumber: 8303 Prefabricated buildings: 156 Wooden doors and windows (Plastics): 68 Other wood articles: 64 **Total: 18,241**	Lumber: 10969 Wooden doors and windows (Plastics): 1903 Prefabricated buildings: 419 Builders' joinery: 282 Furniture components: 187 **Total: 14424**	Lumber: 110,201 Fibreboard: 25,718 Furniture: 19,755 Frames of wood: 11,119 Burial caskets: 7025 **Total: 188,177**	Lumber: 562,880 Particleboard: 41,115 Other wood articles: 34,110 Frames of wood: 20,815 Roundwood: 18,351 **Total: 755,823**	Lumber: 692,353 Frames of wood: 41,222 Particleboard: 41,115 Other wood articles: 34,174 Fibreboard: 25,718 **Total: 976,665**

APPENDIX E

Top Three Export Destinations for the Atlantic and Canadian Wood Industries, 1992-1997 [16] (000's of $)					
Newfoundland					
1992	**1993**	**1994**	**1995**	**1996**	**1997**
Costa Rica: 864 Netherlands: 317 Switzerland: 256	South Korea: 233 UK: 134 France: 130	Italy: 2880 UK: 59 US: 48	Norway: 766 South Korea: 345 Japan: 144	US: 1162 France: 287 UK: 24	US: 17,716 South Korea: 144 UK: 130
Prince Edward Island					
1992	**1993**	**1994**	**1995**	**1996**	**1997**
US: 238	US: 660	US: 1298 Turkey: 1000 Iceland: 11	US: 2996 Sweden: 225	US: 5950 Poland: 104 UK: 32	US: 13,785 Japan: 431 Italy: 208
Nova Scotia					
1992	**1993**	**1994**	**1995**	**1996**	**1997**
US: 23,435 UK: 23,283 France: 1350	US: 31,384 UK: 9245 Turkey: 4082	US: 46,814 UK: 8418 France: 5038	US: 50,412 UK: 13,161 France: 7184	US: 114,044 UK: 13,090 France: 4647	US: 167,952 UK: 7194 France: 3634
New Brunswick					
1992	**1993**	**1994**	**1995**	**1996**	**1997**
US: 172,039 UK: 17,921 Ireland: 1814	US: 300,286 UK: 12,476 Bahrain: 190	US: 410,761 UK: 10,371 Germany: 562	US: 367,028 UK: 15,976 United Arab Emirates: 2715	US: 518,047 UK: 7286 Germany: 2462	US: 740,118 Hong Kong: 4724 Germany: 3036
Atlantic					
1992	**1993**	**1994**	**1995**	**1996**	**1997**
US: 195,712 (77.9%) UK: 41,204 (16.4%) Ireland: 1814 (0.7%) Total: 251,185	US: 332,330 (90.1%) UK: 21,855 (5.9%) Turkey: 4082 (1.1%) Total: 368,787	US: 458,921 (92.8%) UK: 18,484 (3.7%) France: 5038 (1.0%) Total: 494,541	US: 420,436 (88.7%) UK: 29,137 (6.1%) France: 7814 (1.6%) Total: 473,773	US: 639,203 (93.1%) UK: 20,432 (3.0%) France: 4647 (0.7%) Total: 686,935	US: 939,571 (96.2%) UK: 7324 (0.7%) Hong Kong: 4724 (0.5%) Total: 976,665
Canada					
1992	**1993**	**1994**	**1995**	**1996**	**1997**
US: 7,787,922 (72.6%) Japan: 1,615,799 (15.1%) UK: 425,986 (4.0%) Total: 10,726,798	US: 11,123,845 (75.2%) Japan: 2,375,823 (16.1%) UK: 217,338 (1.5%) Total: 14,796,526	US: 14,344,875 (77.8%) Japan: 2,683,821 (14.6%) UK: 250,863 (1.4%) Total: 18,449,724	US: 14,719,159 (75.5%) Japan: 3,098,503 (15.8%) UK: 277,643 (1.4%) Total: 19,501,738	US: 17,631,619 (78.7%) Japan: 3,216,789 (14.4%) UK: 218,615 (1.0%) Total: 22,391,186	US: 20,142,254 (81.5%) Japan: 2,834,217 (11.5%) UK: 227,786 (1.0%) Total: 24,706,941

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THE WOOD INDUSTRY IN ATLANTIC CANADA: A FOCUS ON VALUE-ADDED

PART 5: TRADE AND REGULATION

ATLANTIC CANADA OPPORTUNITIES AGENCY *NOVEMBER 1998*

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EXECUTIVE SUMMARY

INTRODUCTION

This paper is the fifth in a six-part series prepared by the Atlantic Canada Opportunities Agency (ACOA) in consultation with the governments of the four Atlantic provinces on the economic benefits and opportunities that exist in the value-added wood products industry in the Atlantic provinces. While maintaining a focus on the value-added aspects of this sector, the series will examine the following aspects of the industry: State of the Resource; State of the Industry; Productivity and Economic Benefits; Products and Markets; Trade and Regulation; and Needs, Challenges and Targets.

This fifth report is intended to provide an outlook on Atlantic Canada's general level of trade of wood products. It examines the import and export markets of the region's major trading partners in wood products, as well as the regulatory environment in each one of these markets. The report provides a description of the major trade agreements and how they influence the international trade of wood products. Trade agreements examined in this report include the North American Free Trade Agreement (NAFTA), the Canada-U.S. Bilateral Agreement on Softwood Lumber (BASL), and the World Trade Agreement (WTA). There is also a section on policies and regulations affecting the wood products industry in the Atlantic provinces, including New Brunswick's value-added policy, Nova Scotia's Registry of Buyers of Primary Forest Products, and general tax issues.

SUMMARY

Canada is the world's largest exporter of wood products and the forest sector is the country's single greatest contributor to the national balance of trade with a surplus of $35 billion in 1995. Canada's international business strategy is focussed on increasing existing off-shore markets by enhancing the value of forestry exports, 80% of which are considered to be primary products. With regards to NAFTA, the most significant development is that tariffs on Category B products including wood chips, fibreboard, and wooden windows and doors have been removed as of January 1, 1998. Tariffs on Category C products including particleboard, plywood, panels, pallets and other wood articles will be eliminated on January 1, 2003. Category A tariffs on most softwood and hardwood lumber were removed in 1994. The BASL provides a guarantee against United States trade action for five years from 1996 to 2001, as well as a specific tariff exemption for the Atlantic provinces. The World Trade Agreement includes a subsidy-exception for regional development initiatives. From 1992 to 1997, the United States and Germany, along with Japan, were the countries where exports from Atlantic Canada experienced the most growth. During this period, exports to the United Kingdom and France declined significantly and little or no trade was reported from Atlantic Canada to Mexico.

CONCLUSIONS

With significant niche export markets opening up all over the world, small Atlantic Canadian companies wishing to penetrate these markets will likely have to enter into export business networks with other manufacturers from the region.

PART 5

TRADE AND REGULATION

1. CANADA

1.1 Trade in Canada: Canada's international business strategy on forestry is focussed on increasing existing offshore markets and Canada's share of the world market for forestry products. Another goal of the strategy is to reduce dependance on the American market. The strategy seeks to enhance the value of all primary forest products through the development of specialty products and niche markets which can be developed by increased investment in research and development in new secondary wood manufacturing products and processes.

With just over 16% of total world exports in 1995[1], Canada is the world's largest exporter of forest products, with top markets including the United States, the European Union and the Asia-Pacific region. In 1995, Canada's forest sector produced a total of $57 billion in shipments. Exports totalled $41 billion or 72% of production, with only $6 billion in imports. With its $35 billion trade surplus in 1995, the forest industry was the single greatest net contributor to Canada's balance of trade. Wood products accounted for approximately 30% of that trade surplus, with pulp and paper representing another 30% and paper products accounting for 33%.[2] Distribution of trade by region is shown in Graphic 1.

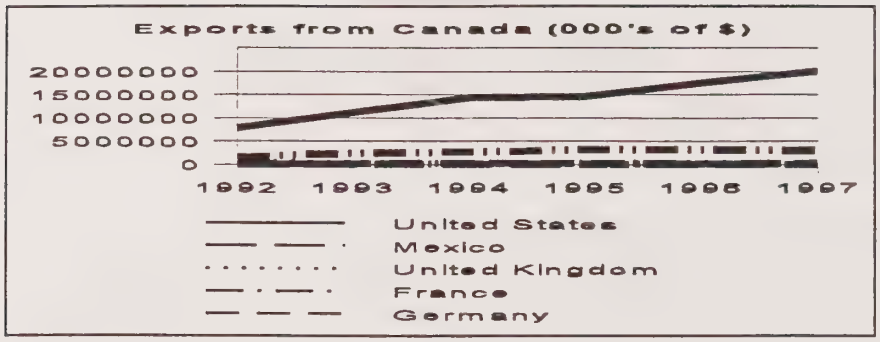
A further analysis would be needed to determine the productivity levels of the secondary wood industries in other Canadian provinces such as Québec and British Columbia and other countries such as the United States, Denmark, Italy, Indonesia and Brazil.

The forestry industry is of great significance to Canada's domestic economy, accounting for 14% of Gross Domestic Product in 1995, 49% of manufacturing in British Columbia, 24% of manufacturing in Atlantic Canada, 16% in Québec, 12% in the Prairies and 6% in Ontario. However, the industry is heavily oriented toward the production of primary products, with 80% of total exports in products such as market pulp, newsprint, other printing and writing paper, softwood lumber and wood-based panel products.[3]

APPENDIX A provides a brief analysis of the Canadian building products sector, the Canadian residential hardwood flooring sector and the Canadian window and door sector.

APPENDIX B provides a general comparison of taxation between Canada and the United States.

GRAPHIC 1



1.2 Regulation in Canada and the World:

NAFTA: The North American Free Trade Agreement (NAFTA) between Canada, the United States and Mexico, which came into effect on January 1, 1994, called for the gradual elimination of tariffs on wood products. By January 1, 1998, all tariffs between the United States and Canada were eliminated. Mexico immediately eliminated tariffs on US and Canadian softwood lumber that meet respective national standards. Canada's phase-out of tariffs will match Mexico's, according to the following schedule:

- **Category A** (Includes products such as softwood lumber, logs, poles, shingles and shakes and prefabricated buildings): Duties to be fully eliminated as of January 1, 1994
- **Category B** (Includes products such as wood chips, certain logs, ties, fibreboard, cases, and diameter wooden windows, frames and doors): Duties to be removed in 5 equal stages of 20% of the base rate from January 1994 to January 1998
- **Category C** (Includes products such as sawdust, particleboard, plywood, panels, pallets and other wood articles): Duties to be removed in 10 equal stages of 10% of the NAFTA base rate from January 1994 to January 2003[4]

NAFTA provides preferential tariff treatment on all wood products originating from North America. A product is defined as North American if it has undergone sufficient transformation in North America. NAFTA also extends opportunities for Canadian firms to sell to the American and Mexican governments. The Canada-U.S. Free Trade Agreement (FTA) only included goods. NAFTA includes provisions for services and construction, lowers the threshold for competitive bidding, covers more U.S. departments such as Energy and Transport and the Army Corps of Engineers, and Mexican government purchases which include most government departments, and the large state-owned telecommunications, oil and gas and power utilities.

Bilateral Agreement on Softwood Lumber (BASL): Softwood lumber trade between Canada and the United States has been an area of friction between the two countries for over 15 years. After lengthy negotiations, Canada and the United States finalized the Agreement on Softwood lumber. The agreement provides Canadian exporters with a guarantee against U.S. trade action for five years.

In return for the U.S. guarantee against trade actions, the Canadian government has agreed that softwood lumber exports to the United States originating from Ontario, Quebec, British Columbia and Alberta would be charged an export fee when these shipments exceeded 14.7 billion board feet per year. Lumber originating from the Maritime provinces, Newfoundland, Manitoba and Saskatchewan and the Territories are exempt from the Agreement. Following an exemption from the Memorandum of Understanding with the United States in the late 1980's, a separate agreement was reached between Canada and the United States on shipments from the Maritime provinces and Newfoundland.

World Trade Agreement (WTA): The Uruguay Round of trade negotiations that led to the creation of the WTO, which will replace the General Agreement on Tariffs and Trade (GATT) were held with the goal of encouraging the expansion of international market access by increasing transparency in trade policy and the competitiveness of national trading environments. The WTO encourages the elimination of a broad range of government subsidies. There are exceptions in the World Trade Agreement for agricultural products, designated research activities and assistance to promote adaptation of existing facilities to new environmental requirements imposed by regulation. The exception which is of most interest for the Atlantic region is the exception for assistance to economically disadvantaged regions within a country pursuant to a general framework of regional development. In order for a region to qualify for this exception, it must have an income, household income or GDP per capita of no more than 85% of the national average and an unemployment rate of at least 110% of the national average over the past three years.[5] This exemption could be of particular interest to the wood industry in Atlantic Canada in the event that the federal and/or provincial governments develop a strategy to assist the industry in the region.

1.3 Regulation in Atlantic Canada: A general regulation issue which faces all secondary wood manufacturers in Atlantic Canada is taxation. According to the Wood Products Group, the former provincial sales tax (PST) regime in New Brunswick resulted in a 1 to 3% disadvantage for some manufacturers because tax was charged on some inputs and not on others. The imposition of the Goods and Services Tax (GST) in 1991 removed one of the flaws of the former system by eliminating the distinction between domestic and imported raw materials used in production[6]. Replacing the PST and the GST, the Harmonized Sales Tax came into effect on April 1, 1997 in Newfoundland, Nova Scotia and New Brunswick. It allows businesses to receive full tax credits on most

of their inputs rather than only on the GST portion of the tax. Prince Edward Island chose not to become a part of the HST. It remains to be seen what effect, if any, this will have on the competitiveness of the province's wood manufacturing sector. Other regional issues include the price of energy and the presence of provincial monopolies, labour issues such as minimum wages, unionization, and the Worker's Compensation Board, and waste disposal for by-products such as sawdust and bark.

New Brunswick: In 1997, the New Brunswick government initiated a multi-pronged value-added policy with the goal of increasing the economic value of the forest industry in the province. The main component of the policy is a directive that will shift greater volumes of raw material from Crown lands towards those mills involved in value-added processing. Commodity-producing operations will only be punished by receiving lesser volumes of wood if they fail to direct their production to in-province value-added manufacturers. Manufacturing facilities using partially processed wood may be granted a joint entitlement Crown allocation for a proportional supply of their requirement.[7]

Another major component of the value-added policy in New Brunswick is the decision by the Department of Economic Development and Tourism to prohibit any form of financial assistance for new greenfield softwood mills or any portable or modular type sawmill. For existing sawmills engaging in value-added activity, concessionary financial assistance will only be available for new products not currently being manufactured in the mill and for that component of the plant which is directed at the manufacture of those value-added materials. The value-added activities must be incremental to the existing plant's operations and must be shown to not negatively affect other New Brunswick operations. Financial assistance may be considered for new hardwood mills since they are not covered under the Bilateral Softwood Lumber Agreement with United States.[8] The province has also embarked upon an initiative to certify various plants across the province. From the time that the policy was initiated, the Department of Natural Resources and Energy estimates that a total of 3509 jobs have been maintained and 1643 new jobs have been created in the industry. It is also estimated that 309,000 m^3 or 6.3% of Crown allocation were transferred due to the policy.

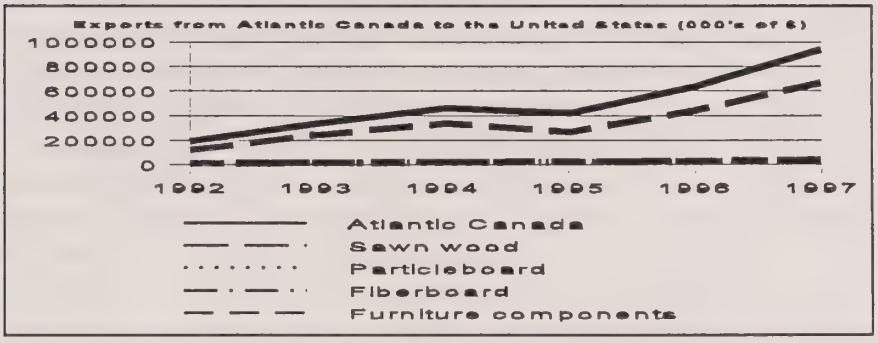
Nova Scotia: In January 1998, the government of Nova Scotia enacted the Registry of Buyers of Primary Forest Products which will act as a registry of individuals and businesses who acquire primary forest products for processing into secondary products, export, sale as firewood or production of energy. The information gathered will enable the province to develop a stronger forest management policy. It will also allow the government to keep track of wood that is leaving the province and for what reason. If it is found that wood is leaving the province for mills or manufacturers outside the region or country, the government could develop incentives to shift that wood to value-added manufacturers in Nova Scotia. The Department of Natural Resources has a list of 500

individuals and businesses who should be registered. As of March 1998, more than 400 are in compliance, while 100 are in non-compliance.

2. UNITED STATES

2.1 Trade with the United States: The American wood products industry has many competitive advantages such as a large modern processing base, the availability and access to adequate forests, an efficient transportation and distribution system, a highly skilled labour force, state-of-the-art technologies and adequate energy and water resources. As trade barriers against wood products are being removed by means of the World Trade Organization, NAFTA and the U.S. -Japan Wood Products Trade Agreement, the United States has started penetrating new markets such as Mexico, South Korea, China, Taiwan and European Union countries. However, the lowering of these barriers has meant increasing competition from outside markets. For instance, Canada accounts for over 80% of U.S. imports of wood and pulp and paper waste. Its share in this market has been increasing over the past decade.[9] Exports from Atlantic Canada to the U.S. have almost quintupled from 1992 to 1997, going from $196 million to almost $1 billion. As seen in Graphic 2, sawnwood represents an average of 70% of all exports from Atlantic Canada to the U.S. Other products which have remained steady are particleboard, fibreboard and furniture components. **(SEE APPENDIX C)**

GRAPHIC 2



2.2 Regulation in the United States: Just as international trade agreements have lowered or eliminated tariffs in other countries, these agreements have also contributed in bringing trade barriers down in the United States. More specifically for the Atlantic provinces, NAFTA and the BASL have provided broad access to the American market at a time when demand for wood products was high. In fact, we have seen in the five year period from 1992 to 1997, the share of exports from the Atlantic provinces destined for the US market increased from 77.9% to 96.2%. Each Atlantic province has experienced a dramatic increase in exports to the American market. The value of the Canadian dollar can also be considered a non-tariff barrier. When the Canadian dollar is high, it costs

more for American buyers to import wood products from Canada. Conversely, the 11.4% depreciation of the Canadian dollar from 1992 to 1996 has made exports from Canada in general and Atlantic Canada in particular more attractive to American importers.

3. MEXICO

3.1 Trade with Mexico: Following the devaluation of the peso in December 1994, housing construction decreased substantially due in part to a significant rise in interest rates and also due to the reduced purchasing power of potential new home owners. Since that time, the economy has restabilised and factors that will make the construction and import markets grow are the economic recovery expected during the next two years which is estimated between 3 and 5% per year, Mexico's liberalized trade policy, and population growth.

Despite the positive forecasts, trade in wood products from Canada has declined from $4.8 million in 1992 to $ 4.3 million in 1997, after reaching a peak of $12.3 million in 1994. Canadian exports have yet to recover from the peso crisis in that year. Moreover, reduced trade barriers through NAFTA have not been able to generate any type of export activity from Atlantic Canada to Mexico. From 1992 to 1997, the only exports registered from the Atlantic provinces destined for Mexico were $1000 worth of packing cases boxes, crates, drums, and pallets of wood in 1994. **(SEE APPENDIX D)**

3.2 Regulation in Mexico: Trade and tariff barriers in Mexico against wood products have fallen and will continue to fall with the full implementation of NAFTA. Duties on products from categories A and B have already been removed. Products in these categories include logs and lumber, wood chips, ties, wooden doors, windows and frames, veneer, fibreboard, cases, shingles and shakes and prefabricated buildings. The third wave of tariffs will be eliminated on January 1, 2003. Products in this category include pointed poles, certain types of logs, 6mm and thicker lumber, particleboard, plywood panels and pallets and various wood articles. Before NAFTA, only the United States had preferential tariffs on wood products.

The major non-tariff barrier facing Atlantic Canadian wood manufacturers attempting to penetrate the Mexican market is the strong competition from American wood manufacturers along the Southern border of the United States, as well as wood manufacturers from Central and South America. Other non-tariff barriers in Mexico include the national registry of importers which requires an import permit and a certificate of origin. Mexican custom laws are very stringent on the proper submission and preparation of customs documentation. The *Organismo nacional de Normalizacion y Certificacion de la Construsion y Edificacion* (ONCE) is a national body composed of 16 chambers, associations and building materials manufacturers who oversee the 300 voluntary technical standards for building materials. Although building materials need not

meet any Mexican labelling regulations, it is preferable to include descriptions and instructions in Spanish. There are two basic distribution channels in Mexico. The first is composed of over 20,000 large, medium and small distributors located in the country's major cities. The second is made up of large construction companies and large distributors who buy and import directly from foreign manufacturers.[10]

4. EUROPE

4.1 The United Kingdom: According to an analysis prepared by the American Embassy in London, the building products sector ranks third in a list of top business opportunities in Great Britain. Construction output is expected to rise by 12.9% from $US 18.6 billion in 1996 to $US 21.0 billion in 1998. Imports of building products are also expected to rise at the same rate from $US 3.2 billion to $US 3.6 billion over the same period. According to the U.S. Department of Commerce, best opportunities for wood products are in decorative millwork, flooring products and windows and doors, due to Britain's older housing stock being updated by home owners. Annual softwood demand is approximately 6 million m^3 of which an average of 80% is imported. The main sources of competition to North American firms are Scandinavian countries such as Finland and Sweden and increasingly from the Baltic States.[11] As seen in Graphic 3, exports to the U.K. from Atlantic Canada have fallen sharply by over 75% from 1992 to 1997. The top product remains sawn wood; however, fibreboard and prefabricated buildings have experienced moderate growth over the period. **(SEE APPENDIX E)**

In 1975, James Snell, a Halifax businessman, founded Habitations International (Interhabs Ltd.) with the express intent of exporting timber frame housing overseas. The firm now exports 65% of its timber frame houses to clients in the United States, Argentina, Korea, and a number of European destinations like Germany, Sweden, Denmark, Holland and Scotland. Estimating the economic impact of its value-added products, the company can sustain twenty full-time jobs when it exports sixty houses per year, compared to only one if only lumber were exported. The company exports to four or five countries at a time in order to diversify the risk associated with exporting to different countries.[12]

The most significant trade barrier facing companies from Canada and Atlantic Canada is the phytosanitary restriction which requires all Canadian lumber imports to be kiln-dried in order to destroy the pine wood nematode. Great Britain had traditionally been Nova Scotia's largest trading partner for wood products. Up to 1992, the value of wood products exports to the United Kingdom were equal to if not greater than exports to the United States. By 1997, exports of wood products to the United States accounted for fully 93.9% of the total value of wood exports.

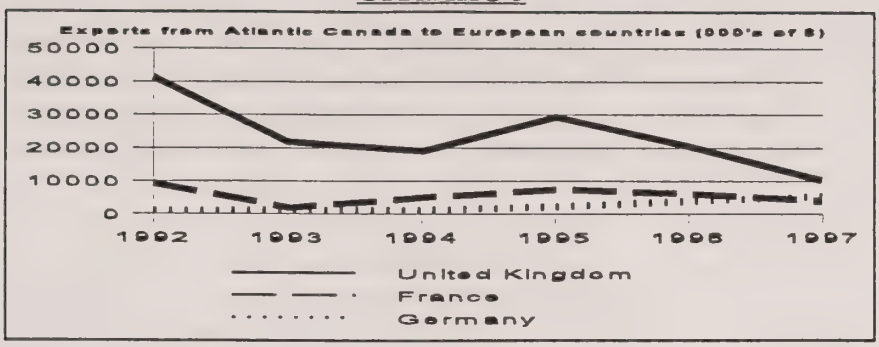
4.2 France: The French building products sector includes wood products such as lumber and panels, doors and windows, as well as prefabricated structures. In 1994, the sector had an estimated value of $US 13.3 billion, the second largest in Europe. However, the building products sector suffered two successive declines of 4.8% in 1993 and 1.6% in

1994. It is projected to increase by 1 to 2 % in 1995 as a result of renewed government financing for social housing. Private housing construction increased by 15% from 1993 to 1994. The building products sector has been sustained by a strong demand in renovation and home repair. The Do-It-Yourself (DIY) sector has grown by 5% annually from 1992 to 1995. The French market is very receptive to new and innovative products, but markets are highly segmented and distributors often specialize in specific product lines. As in the United Kingdom and Germany, environmental issues are becoming a critical competitiveness factor. Most of Atlantic Canada's trade with France was actually conducted with the islands of St-Pierre et Miquelon off of Newfoundland. From 1992 to 1997, trade between Atlantic Canada and France declined by more than half, falling from $9.4 million to $ 3.9 million, as seen in Graphic 3. Major export products still include fibreboard, sawn wood, and plywood. There has been growth in the prefabricated building sector, but it has not been steady. **(SEE APPENDIX F)**

All products and materials intended for use in building construction must be guaranteed for ten years, with full liability for materials, labour and building contents. All products must also meet the criteria of AFNOR, the French National Standards Association. Labelling in French is mandatory. Customs duties on building products can range from 4% to 10% and the value-added tax in 1995 was 18.6%. In terms of distribution, up to 70% of products are distributed through a professional network of wholesalers and industrial suppliers. The DIY distribution network of large warehouse-type stores is increasing its share of the building products sector, reaching 10% of sales in 1995.[13]

4.3 Germany: Germany's $US 169 billion construction industry was Europe's strongest in 1994. While growth in construction was predicted to be flat, the German government will channel public funds to East Germany in order to finance the rebuilding needs of the five new federal states. The United States Department of Commerce forecasts that this trend will continue until 2004-2005. German houses and buildings are perceived by consumers as being too expensive, particularly in the residential sector. German developers are therefore looking for new ways to reduce costs, but customers will insist on a good price/quality ratio. As seen in Graphic 3, exports to Germany from Atlantic Canada have been increasing rapidly over the 92-97 period, more than quintupling from $1.0 million in 1992 to $5.5 million in 1997. The most significant growth has been in sawn wood, with strong growth also showing in prefabricated buildings and builders' joinery. Exports of furniture components fell from a high of $734,000 in 1993 to only $14,000 in 1997.[14] **(SEE APPENDIX G)**

GRAPHIC 3



4.4 Regulation in Europe: The European Union has started implementing a Construction Products Directive aimed at preventing biological hazards and enhancing the wood's durability and is expected to require higher levels of noise insulation and fire protection. Once harmonization is fully implemented, the "EU" stamp will allow a product to be sold in all European Union countries. Before the Directive is fully implemented, highly variable national standards still apply.[15]

5. JAPAN

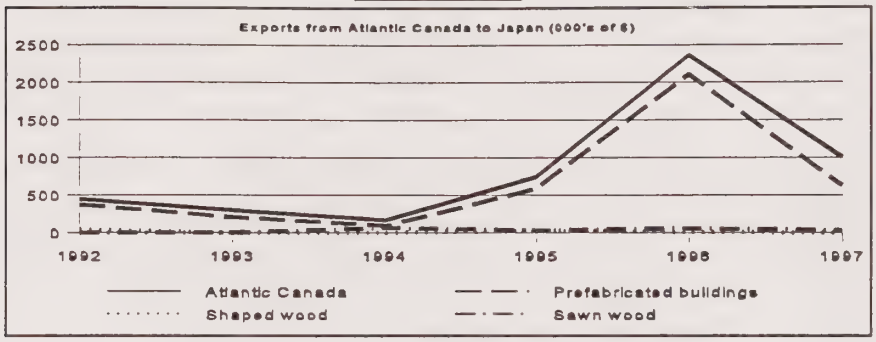
5.1 Trade with Japan: According to Canada's International Business Strategy on Forest Products, Japan is the world's largest importer of solid wood products. It is also Canada's second largest trading partner after the United States. Japan's construction market is one of the largest in the world and in 1994, the Government of Japan promulgated an "Action Plan on Reform of the Bidding and Contracting Procedures for Public Works," designed to give foreign countries more access to Japan's public works market, where total procurement volume for the Action Plan alone is estimated at $US 15 billion per year. Total construction investment in 1995 was $US 855 billion, shrinking to $US 772 billion in 1996. Public construction investments totalled $US 367 billion in 1995 and $US 354 billion in 1996.

Prince Edward Mouldings was a founding member of Atlantic Canada Homes Inc. The small company based in Winsloe, Prince Edward Island is now producing the mouldings for a series of houses, based on the Anne of Green Gables model which are destined for the Japanese market.

The government of Japan's April 1995 emergency economic strategy to respond to the rapid appreciation of the yen included a plan to promote imported housing in an effort to lower the country's trade surplus. Imported housing has also been growing in Japan because imported 2x4 houses have been found to be two to three times less expensive than Japanese built houses. The United States is the largest supplier of imported homes to

Japan with approximately 50% of the market, followed by Canada and Scandinavia. Although the value of exports from Atlantic Canada to Japan increased from only $444,000 in 1992 to over $1 million in 1997, there was a sharp decline from 1996 to 1997 ($2.4 million down to $1 million,) as illustrated in Graphic 4. The dominant export product remains prefabricated buildings, with some exports in shaped wood, sawn wood and other wood articles. **(SEE APPENDIX H)**

GRAPHIC 4



5.2 Regulation in Japan: No license is required to sell construction materials in Japan, although all products should conform to Japan Industrial Standards (JIS) before going ahead with export procedures. Import duties on housing packages were 1.6% up to January 1998 and are now only 0.8%. They may be removed altogether at a future date. All imports are subject to a 5% consumption tax. Distribution of wood products, especially imported housing, starts in North America with the manufacturer who can then choose to work directly with Japanese agents or go through a North American consolidator, before the products are sold to Japanese home builders. The concept of a consolidator, as used in the Atlantic Canada Homes project, avoids high inventory costs in Japan and allows for the shipping of housing packages directly to Japanese home builders.[16]

6. ISSUES AND OPTIONS

With significant markets for wood products opening up in North America, Europe and Asia, wood manufacturers in Atlantic Canada will be faced with greater and greater export opportunities. Given the small size of many establishments in the region, new ways will have to be found to access large markets around the world. This would appear to be an argument to increase the size of various exporting establishments in the region. However, even the larger companies such as Groupe Savoie have had to create strategic exporting alliances with other establishments in the region. Another option is the creation of export business networks similar to those instituted in Denmark. Export Business Networks are small groups of two or three or more small and medium-sized businesses that decide to cooperate in order to undertake export-related projects that they could not successfully pursue on an individual basis.

Four small Nova Scotia companies will be the joint recipients of a government of Nova Scotia Export Achievement Award for their exporting success in 1997. Darrow Wood Products of Shelburne, Northern Lumber of Tatamagouche, Atlantic Lumber of Sydney and Catou Kilns of Richmond County teamed up as a consortium to fill large orders of kiln-dried hardwood dimension stock and specialty lumber items to several U.S. and European buyers. [17]

The COOPERATION Agreement on International Business Development includes a three-phase financial assistance program for small groups of companies who are serious about exporting to larger markets. The Wood Products Group and the Canada Mortgage Housing Corporation also provide training and services such as the Export Development Corporation credit insurance program. The Atlantic Canada Homes program is a successful example of an export business network in the region's secondary wood industry.

The Canada Mortgage and Housing Corporation and the Wood Products Group have designed an export workshop for housing and building products and services intended to help Atlantic Canadian companies assess their export readiness, evaluate their target market, prepare their export plan, finance their export sales, understand shipping and the use of freight forwarders, prepare for trade shows and deal with brokers.

APPENDIX A

SELECTED CANADIAN MARKETS

The Canadian Building Products Sector

In 1994, the domestic Canadian building products sector was worth approximately 8% or $US 5.7 billion of the $US 71.2 billion construction industry. It is one of the main markets for value-added wood products. Only marginal growth of 2% per annum was expected in this sector from 1995 to 1997. From 1993 to 1994, lumber prices had increased by 19%, pushing the total cost of lumber for a new home to $US 9100. Since 1994, lumber prices have declined. Over the 12 month period from February 1997 to February 1998, lumber prices in Canada fell by 13%. In 1994, U.S. exports to Canada in the building supplies sector accounted for $US 1.8 billion or 31.6% of the total worth of the Canadian industry.

The Canadian Residential Hardwood Flooring Sector

The Canadian residential hardwood flooring sector is undergoing a period of adjustment because of increased competition amongst domestic manufacturers, newly defined import and distribution lines, aggressive retailing by building supply outlets and a strong commitment by Canadian home owners to upgrade and replace existing flooring. The low value of the Canadian dollar has helped to stimulate Canadian exports of hardwood floors to the United States. In 1993-1994, imports still accounted for 35% of market demand, and the United States accounted for 87% of those imports, despite the weakening Canadian dollar. There are presently no tariffs on residential hardwood flooring between Canada and the United States.

The Canadian Window and Door Sector

The Canadian window and door sector is highly competitive because of the over 1000 manufacturers spread out across the country and the relative ease of start-up for new companies. The United States only accounts for 5% of the domestic market, with another 5% shared amongst other foreign countries. Although there are no major trade barriers, exporters into the Canadian market can be faced with tariffs ranging from 0% to 1.8%, 2% and 2.7%. Standards are defined by the Canadian Construction Materials Centre and in compliance with Canada's Building code CAN/CSA A440-M90. The Canadian Standards Association (CSA) and the Canadian Window and Doors Manufacturers have developed a unique Energy Rating (ER) which measures the ability of a window to admit solar energy. Traditional distribution occurs when small manufacturers sell directly to contractors and home owners. Larger manufacturers have started selling through established distribution networks.[18]

APPENDIX B

A TAXATION COMPARISON BETWEEN CANADA AND THE UNITED STATES

The two primary tax costs that are of concern to business owners are the cost of doing business and the tax to be paid after the proper deductions. According to the 1993 ACOA document entitled *Competitiveness in Atlantic Canada*, taxable income tax rates for American companies are lower than those for Canadian companies. An analysis of the cost of doing business includes all deductions from income such as property taxes, payroll taxes, sales taxes and depreciation.

- Although property tax rates are on average higher in Atlantic Canada than in the rest of Canada and the United States, the assessment value for many properties will be less than in other jurisdictions. Property taxes only represent approximately 10% of total taxes paid. There can, however, be substantial variations from one region to another in Atlantic Canada, especially between cities and rural areas.

- The same document concluded that in 1993 the average payroll tax for UIC and CPP in the United States as a percentage of payroll was 11.9%, while in Atlantic Canada it stood at 3.9%. Since 1994, Unemployment Insurance premiums have decreased 12.1%, while premiums paid to the Canadian Pension Plan, which had remained relatively stable up to 1996, will be increasing from 5,85% of earnings to a maximum of 9.9% of earnings in 2003, a total increase of 69.2% in five years. It should also be noted that Worker's Compensation is substantially higher in the United States than it is in Canada. American employers often incur additional expenses in buying their employees group plans for social and health insurance.

- Provincial sales taxes in Canada are higher in Canada than in the United States. In 1993, New Brunswick had an 11% rate , while the rates in Maine and New Jersey were 5% and 6% respectively. Ontario's provincial sales tax was 7% and Alberta has no sales tax.

- The United States method of depreciation allows for a faster write-off of the cost of an asset and allows an asset to be fully written off. The Canadian Capital Allowance (CCA) allows Canadian companies to deduct depreciation by applying a rate to the undepreciated value of each asset.

- Income tax rates paid by Canadian companies are generally lower than in the United States. For instance, in 1993 the total federal-provincial tax rate in New Brunswick and Ontario were 37% and 34.5% respectively. In New Jersey, the combined rate was 41%, while in Maine it varied from 37.5% to 42.93%. In these states, however, the state income tax is deducted before the federal tax, and the different method of depreciation compensates for the higher income tax rates.

APPENDIX C

Exports to the United States by Province and by Product, 1992-1997 (000's of $) [19]

Newfoundland

1992	1993	1994	1995	1996	1997
Lumber - 112 Wooden doors and windows- 62 Particleboard - 49 Seats - 4 Ties - 1 Furniture Components - 1 **Total: 233**	Wooden doors and windows-48 Trailers-7 Frames of wood-2 **Total: 59**	Furniture components-34 Frames of wood-11 Roundwood-2 Wooden doors and windows-1 **Total: 50**	Furniture components-35 Wooden doors and windows-16 Burial caskets-12 **Total: 65**	Lumber-1162 Frames of wood-18 Furniture components-9 Trailers-3 Marquetry-2 **Total: 1196**	Frames of wood-9295 Lumber-8275 Other wood articles-64 Furniture components-35 Seats-29 Burial caskets-10 Roundwood-6 Marquetry-2 **Total: 17, 719**

Prince Edward Island

Lumber-176 Furniture components-26 Ties-16 Wooden doors and windows-14 Frames of wood-3 Prefabricated buildings-2 **Total: 238**	Lumber-457 Builders' joinery-98 Wooden doors and windows-26 Shaped wood-25 Furniture components-22 Ties-13 Other wood articles-10 Wooden frames-3 Frames of wood-3 **Total: 660**	Lumber-598 Roundwood-324 Furniture components-131 Particleboard-70 Wooden doors and windows-56 Seats-37 Frames of wood-25 Builders' joinery-4 Shaped wood-3 **Total: 1251**	Lumber-2176 Roundwood-365 Wooden doors and windows-147 Seats-79 Frames of wood-69 Particleboard-60 Furniture components-59 Pallets-33 Prefabricated buildings-3 **Total: 2995**	Lumber-4234 Wooden doors and windows-967 Veneer-190 Furniture components-189 Roundwood-124 Frames of wood-106 Trailers-68 Seats-48 Hoopwood-7 Other wood articles-7 **Total: 5949**	Lumber-10, 969 Wooden doors and windows-1903 Furniture components-143 Trailers-123 Frames of wood-122 Burial caskets-103 Roundwood-86 Veneer-82 Shaped wood-79 Builders' joinery-74 **Total: 13,752**

Nova Scotia

Fibreboard-11, 794 Furniture components-7671 Frames of wood-1774 Lumber-996 Burial caskets-458 Ties-441 Wooden doors and windows-85 Builders' joinery-73 Plywood-50 Roundwood-31 **Total: 23,405**	Fibreboard-16,395 Furniture components-8577 Lumber-4705 Frames of wood-1627 Burial caskets-1164 Ties-533 Veneer-233 Prefabricated buildings-204 Particleboard-138 Shaped wood-110 **Total: 34,083**	Fibreboard-17,386 Furniture components-10,456 Lumber-10,413 Frames of wood-3689 Burial caskets-1974 Roundwood-1584 Other wood articles-424 Wooden doors and windows-156 Shaped wood-144 Pallets-135 **Total: 46,728**	Furniture components-17,321 Fibreboard-15,511 Lumber-7160 Burial caskets-4147 Frames of wood-3292 Roundwood-1044 Wooden doors and windows-426 Shaped wood-416 Other wood articles-211 Prefabricated buildings-148 **Total: 50,075**	Lumber-67,596 Fibreboard-16,806 Furniture components-15,375 Frames of wood-5938 Roundwood-2212 Burial caskets-2021 Wooden doors and windows-1200 Other wood articles-885 Shaped wood-398 Fuelwood-299 **Total: 113,603**	Lumber-101,785 Fibreboard-21,940 Furniture components-18,798 Frames of wood-10,135 Burial caskets-6814 Roundwood-3429 Other wood articles-1088 Shaped wood-937 Wooden doors and windows-852 Fuelwood-520 **Total: 167,065**

New Brunswick

Lumber-124,061 Other wood articles-15,276 Particleboard-11,997 Builders' joinery-5679 Plywood-4388 Roundwood-3041 Furniture components-2599 Veneer-1661 Shaped wood-1319 Frames of wood-602 **Total: 172,312**	Lumber-242,275 Particleboard-16,723 Other wood articles-14,742 Furniture components-7280 Builders' joinery-5692 Frames of wood-3183 Roundwood-2692 Veneer-2156 Shaped wood-1858 Plywood-1102 **Total: 300,515**	Lumber-325,083 Particleboard-18,967 Builders' joinery-15,838 Other wood articles-13,293 Furniture components-12,141 Frames of wood-7584 Fibreboard-7071 Prefabricated buildings-2787 Veneer-2588 Roundwood-2290 **Total: 410,827**	Lumber-256,022 Builders' joinery-23,543 Other wood articles-23,207 Particleboard-21,462 Furniture components-12,237 Frames of wood-8863 Fibreboard-5359 Prefabricated buildings-3780 Roundwood-3383 Veneer-2217 **Total: 367,365**	Lumber-372,772 Other wood articles-27,074 Builders' joinery-21,049 Particleboard-19,601 Frames of wood-18,507 Roundwood-16,683 Furniture components-14,461 Fibreboard-8542 Prefabricated buildings-6106 Veneer-3157 **Total: 518,566**	Lumber-556,578 Particleboard-41,115 Other wood articles-34,089 Frames of wood-19,999 Roundwood-18.181 Fibreboard-17,133 Builders' joinery-16,853 Furniture components-16,823 Prefabricated buildings-8790 Veneer-3014 **Total: 740,892**

Atlantic Canada

Lumber-125,345 Other wood articles-15,279 Particleboard-12,046 Fibreboard-11,794 furniture components-10,297 Builders' joinery-5752 Plywood-4438 Roundwood-3072 Frames of wood-2379 Veneer-1661 **Total: 196,188**	Lumber-247,437 Particleboard-16,861 Fibreboard-16,395 Furniture components-15,879 Other wood articles-14,752 Builders' joinery-5790 Frames of wood-4815 Roundwood-2692 Veneer-2389 Shaped wood-1993 **Total: 335,515**	Lumber-336,137 Particleboard-24,457 Furniture components-22,762 Shaped wood-19,037 Builders' joinery-15,842 Other wood articles-13,717 Frames of wood-11,309 Roundwood-4200 Prefabricated buildings-2787 Veneer-2588 **Total: 458,856**	Lumber-265,358 Furniture components-29,652 Builders' joinery-23,543 Other wood articles-23,418 Particleboard-21,522 Fibreboard-20,870 Frames of wood-12,224 Prefabricated buildings-3931 Roundwood-4792 Burial caskets-4159 **Total: 420,500**	Lumber-445,764 Furniture components-30,034 Other wood articles-27,996 Fibreboard-25,348 Frames of wood-24,569 Builders' joinery-21,049 Particleboard-19,601 Roundwood-19,019 Prefabricated buildings-6106 Veneer-3347 **Total: 639,314**	Lumber-677,607 Particleboard-41,115 Frames of wood-39,551 Fibreboard-39,073 Furniture components-35,799 Other wood articles-35,241 Roundwood-21,702 Builders' joinery-16,927 Prefabricated buildings-8790 Burial caskets-6927 Veneer-3096 **Total: 939,428**

Canada

Lumber-4,286,953 Seats-848,349 Furniture components-695,445 Particleboard-410,078 Builders' joinery-343,517 Burial caskets-197,139 Shaped wood-186,241 Veneer-164,018 Other wood articles-131,097 Wooden doors and windows-115,582 **Total: 7,761,549**	Lumber-6,507,005 Seats-1,062,685 Furniture components-958,562 Particleboard-649,722 Builders' joinery-384,927 Burial caskets-230,841 Shaped wood-209,182 Veneer-199,008 Other wood articles-153,841 Wooden doors and windows-149,541 **Total: 11,097,926**	Lumber-8,126,242 Seats-1,416,910 Furniture components-1,347,856 Particleboard-945,863 Builders' joinery-464,377 Burial caskets-330,421 Veneer-252,209 Shaped wood-228,908 Wooden doors and windows-209,102 Frames of wood-203,293 **Total: 14,308,944**	Lumber-7,311,875 Furniture components-1,683,995 Seats-1,648,772 Particleboard-1,075,374 Builders' joinery-515,541 Burial caskets-384,232 Frames of wood-296,922 Wooden doors and windows-274,857 Other wood articles-269,256 Veneer-268,761 **Total: 14,667,764**	Lumber-9,092,354 Furniture components-2,086,987 Seats-1,869,286 Particleboard-1,114,176 Builders' joinery-655,526 Frames of wood-407,293 Burial caskets-402,264 Wooden doors and windows-313,133 Veneer-277,091 Other wood articles-268,141 **Total: 17,557,069**	Lumber-9,774,471 Furniture components-2,685,470 Seats-2,103,531 Particleboard-1,132,240 Builders' joinery-964,941 Frames of wood-514,219 Burial caskets-471,084 Other wood articles-366,301 Wooden doors and windows-343,281 Veneer-315,004 **Total: 20,050,153**

SELECTED AMERICAN MARKETS

The American Hardwood Veneer and Plywood Sector

The American hardwood veneer and plywood sector is facing increased international competition especially from Indonesia and Malaysia. In fact, exports of hardwood veneer and plywood decreased by 2% in 1996, with more than half of exports destined for Canada, Germany and Mexico. Total hardwood imports increased by over 8% in that same year, with increases reported in every major commodity. Consistently over the past five years, hardwood plywood has made up 72% of U.S. imports of hardwood. Canada supplied 61% of hardwood plywood, while Brazil supplied 15%. Indonesia supplies 44% of the hardwood veneer, while Canada only supplies 13% of that market. Indonesia has developed the practice of purchasing US veneer grade hardwood logs and processing them into veneer overlaid with lauan plywood cores, which the country will export back to the United States.

The United States Softwood Veneer and Plywood Sector

The United States softwood veneer and plywood sector has suffered declining sales in recent years due to strong product competition from Oriented Strand Board (OSB) and international competition from Canada, Indonesia and Brazil. In 1996, Exports declined by 5% to $US 317 million. While softwood plywood exports still accounted for over 90% of total exports, they fell by 11% in 1996. Softwood veneers are considered to be a bright spot, increasing their share of exports to 10% in 1996. Softwood veneer made up 65% of the sector's imports with most coming from Canada, while the remaining 35% of imports were in softwood veneer which were primarily from Canada and Mexico. Imports fell by 15% to $US 85 million in 1996.

The United States Reconstituted Wood Products Sector

The American reconstituted wood products sector is a growing sector in the United States. It includes particleboard, hardboard, medium density fibreboard (MDF), oriented strand board (OSB), insulation board, and prefinished particleboard. OSB constitutes the largest sector of the industry with 30% of production, with particleboard being the second largest sector. Industry shipments increased by about 3% in 1996, while the value of exports declined slightly to $US 324 million. However, in that same year, the value of reconstituted wood exports to Canada increased by 75% to $US 47.3 million. The value of imports increased substantially in 1996 to an estimated $US 1.6 billion due to significant price swings in that year. Most of the increase came from Canada from which imports increased by 50% to $US 1.4 billion.[20]

APPENDIX D

Exports to Mexico by Province and by Product, 1992-1997 (000's of $) [21]					
1992	1993	1994	1995	1996	1997
New Brunswick					
0	0	Pallets- 1	0	0	0
Atlantic Canada					
0	0	Pallets- 1	0	0	0
Canada					
Seats-3387 Prefabricated buildings-935 Burial caskets-182 Lumber-111 Furniture components-76 Plywood-68 Wooden doors and windows-19 Frames of wood-15 Veneer-15 Total: 4814	Seats-6679 Burial caskets-240 Furniture components-237 Frames of wood-208 Prefabricated buildings-205 Lumber-121 Veneer-114 Other wood articles-30 Wooden doors and windows-9 Shaped wood-3 Total: 7851	Prefabricated buildings-7330 Seats-2885 Frames of wood-938 Furniture components-704 Lumber-319 Burial caskets-77 Plywood-22 Trailers-10 Wooden doors and windows-8 Fibreboard-3 Total: 12,302	Seats-4383 Burial caskets-1035 Frames of wood-772 Furniture components -294 Builders' joinery-147 Wooden doors and windows-134 Lumber-71 Prefabricated buildings-25 Other wood articles-5 Total: 6871	Seats-4181 Furniture components-240 Burial caskets-204 Prefabricated buildings-151 Wooden doors and windows-122 Casks-119 Frames of wood-43 Lumber-28 Other wood articles-13 Tools-11 Total: 5117	Seats-2204 Wooden doors and windows-792 Prefabricated buildings-305 Burial caskets-272 Frames of wood-248 Lumber-210 Furniture components-131 Veneer-62 Trailers-32 Roundwood-10 Total: 4271

The Mexican Construction Building Materials Sector

The construction building materials market in Mexico includes wood products such as lumber and hardwood and softwood plywood and veneer, which usually find their largest demand in the construction of banks, housing, hospitals, schools, restaurants, office buildings, movie theatres and recreation centres. It is estimated that the major Mexican construction companies will invest up to $US 9 billion in the construction of such establishments in 1998. The total 1997 market for building materials is estimated at SU.S. 6.2 billion with U.S. imports of $US 938 million, representing 72% of total exports.

The Mexican Windows and Doors Sector

The Mexican windows and doors market reached a total value of $U.S. 878 million in 1995 and it is expected to increase by 13% to $U.S. 992 million in 1996 and SU.S. 1.1 billion in 1997. However, demand is met primarily by domestic producers who supply 96% of windows, doors and related supplies. 80% of windows are customized for clients and the standard sizes of windows are 85 x 213 cm and 100 x 213 cm. Although imports decreased by 48.6% in 1994, the United States is the dominant supplier with 78% of imports. The US government predicts that home construction imports will increase at an average of 12% annually from 1996 to 1999. Best prospects include wood doors in standard sizes.

The Mexican Hardwood and Softwood Panels Sector

Mexico's hardwood and softwood panels market covers softwood and hardwood plywood, particleboard, medium density fibreboard and fibreboards. The Mexican market for such products is expected to grow 10% per year from 1997 to 2000, with imports increasing by 8% annually. The American share of the Mexican market has fallen due to increased competition from Indonesia, Guatemala and Brazil. Opportunities exist for processed wood products, manufactured doors, closets, flooring, desks, kitchen cabinets, tables, containers and pallets.[22]

APPENDIX E

Exports to the United Kingdom by Province and by Product, 1992-1997 (000's of dollars)[23]

Newfoundland

1992	1993	1994	1995	1996	1997
Lumber-10 **Total: 10**	Lumber-112 Furniture components-12 **Total: 124**	Lumber-59 **Total: 59**	Lumber-115 **Total: 115**	Lumber-23 Burial caskets-1 **Total: 24**	Prefabricated buildings-130 **Total: 130**

Prince Edward Island

0 **Total: 0**	0 **Total: 0**	Lumber-50 **Total: 50**	0 **Total: 0**	Furniture components-32 **Total: 32**	Furniture components-32 **Total: 32**

Nova Scotia

Lumber-23,087 Prefabricated buildings-122 Fibreboard-33 Furniture components-19 Frames of wood-15 Burial caskets-9 **Total: 23,287**	Lumber-8781 Fibreboard-217 Prefabricated buildings-144 Furniture components-46 Other wood articles-37 Burial caskets-19 Trailers-1 **Total: 9248**	Lumber-7850 fibreboard-541 Prefabricated buildings-27 Burial caskets-6 **Total: 8425**	Lumber-12,198 Prefabricated buildings-456 Fiberboard-190 Shaped wood-160 Burial caskets-81 Builders' joinery-21 Seats-6 **Total: 13,115**	Lumber-11,085 Fiberboard-1098 Frames of wood-674 Prefabricated buildings-74 Roundwood-65 Burial caskets-33 Builders' joinery-21 Furniture components-14 Pallets-12 Seats-9 **Total: 13,089**	Lumber-6735 Prefabricated buildings-449 Fibreboard-407 Shaped wood-30 Furniture components-22 **Total: 7645**

New Brunswick

Lumber-17,303 Other wood articles-555 Furniture components-62 **Total: 17,921**	Lumber-11,770 Other wood articles-307 Furniture components-213 Particleboard-104 Roundwood-53 Shaped wood-27 **Total: 12,477**	Lumber-9876 Other wood articles-448 Shaped wood-28 Roundwood-18 **Total: 10,371**	Lumber-15,829 Other wood articles-146 **Total: 15,976**	Lumber-7025 Shaped wood-169 Prefabricated buildings-51 Builders' joinery-41 **Total: 7287**	Lumber-1904 Builders' joinery-219 Furniture components-156 Shaped wood-95 Other wood articles-21 **Total: 2396**

Atlantic Canada

Lumber-40,400 Other wood articles-555 Prefabricated buildings-122 Furniture components-81 Fibreboard-33 Frames of wood-15 Burial caskets-9 **Total: 41,218**	Lumber-20,663 Other wood articles-344 Furniture components-271 Fibreboard-217 Prefabricated buildings-144 Particleboard-104 Roundwood-53 Shaped wood-27 **Total: 21,849**	Lumber-17,835 Fibreboard-541 Other wood articles-448 Shaped wood-28 Prefabricated buildings-27 Roundwood-18 Burial caskets-6 **Total: 18,905**	Lumber-28,142 Prefabricated buildings-456 Fibreboard-190 Shaped wood-160 Other wood articles-146 Burial caskets-81 Builders' joinery-21 Seats-6 **Total: 29,206**	Lumber-18,133 Fibreboard-1098 Frames of wood-674 Shaped wood-169 Prefabricated buildings-125 Roundwood-65 Builders' joinery-62 Burial caskets-34 Furniture components-14 Pallets-12 **Total: 20,432**	Lumber-8639 Prefabricated buildings-579 Fibreboard-407 builders' joinery-219 Furniture components-210 Shaped wood-125 Other wood articles-21 **Total: 10,203**

Canada					
Lumber-359,308 Plywood-22,663 Furniture components-12,059 Builders' joinery-7005 Shaped wood-5505 Other wood articles-4014 Particleboard-2467 Frames of wood-2459 Burial caskets-2336 Fibreboard-1662 Total: 424,475	Lumber-162,660 Plywood-14,423 Furniture components-8244 Shaped wood-6846 Builders' joinery-5895 Burial caskets-3897 Other wood articles-2690 Frames of wood-2486 Veneer-2291 Fibreboard-1651 Total: 216,670	Lumber-189,711 Plywood-18,035 Furniture components-11,964 Builders' joinery-7269 Shaped wood-5163 Other wood articles-3378 Frames of wood-3092 Veneer-2777 Burial caskets-2371 Fibreboard-1520 Total: 250,041	Lumber-190,015 Plywood-29,068 Furniture components-16,530 Builders' joinery-9174 Shaped wood-5916 Burial caskets-5367 Frames of wood-4432 Veneer-4278 Prefabricated buildings-4049 Trailers-2370 Total: 276,496	Lumber-131,653 Furniture components-20,955 Plywood-18,851 Builders' joinery-13,581 Burial caskets-7085 Frames of wood-5950 Wooden doors and windows-4027 Veneer-3081 Shaped wood-3004 Prefabricated buildings-2703 Total: 217,676	Lumber-138,883 Furniture components-21,198 Plywood-18,376 Builders' joinery-13,949 Frames of wood-6873 Burial caskets-5541 Other wood articles-3435 Wooden doors and windows-3396 Veneer-3333 Shaped wood-3137 Total: 226,756

SELECTED BRITISH MARKETS

The British Builders' Carpentry and Joinery Sector

In 1994, the British builders' carpentry and joinery market was estimated to be worth $U.S. 2.2 billion or 15% of the larger timber and joinery market which was worth an approximate $US 14.8 billion. The builders' carpentry and joinery market includes sawmills, semi-finished wood products, wood furniture, wood containers, office fittings, mouldings, doors, windows and frames. The market has fallen by 22% from a peak of $US 18 billion in 1990. In the UK, the three main outlets for these products are new construction, repairs and maintenance and the Do-It-Yourself Market. The best opportunities for North American manufacturers exist in niche markets such as home improvement products, decorative architectural moldings and in the supply of temperate hardwoods. Import duties can range from 0% to 3.9% for sawnwood, 3.5% to 6.5% for veneer sheets, 9-10% for plywood, 2-3% for mouldings and 4-5% for general carpentry and joinery.

The British Do-It-Yourself (DIY) Sector

The British Do-It-Yourself (DIY) market is an increasingly important outlet for wood products in Great Britain. Although it is difficult to measure the full value of the DIY market in the UK, the U.S. Department of Commerce estimates that in 1995 it was worth over $US 8 billion in retail sales prices. Large warehouse-type superstores now account for up to 70% of total retail sales. There are now four large chains of DIY superstores: B & Q which has gone on record saying that it will not buy lumber from non-sustainable sources, Texas Home Care, Do it All (Holdings) Ltd and Homebase. Wood products covered in the DIY sector include flooring, lumber and board, self-assembly shelving and storage, doors and windows and self-assembly furniture.[24]

APPENDIX F

Exports to France by Province and by Product, 1992-1997 (000's of $)[25]

Newfoundland

1992	1993	1994	1995	1996	1997
Furniture components-42 Trailers-16 Seats-9 Builders' joinery-5 Burial caskets-5 Frames of wood-3 Plywood-3 Wooden doors and windows-2 **Total: 90**	Trailers-64 Furniture components-50 Lumber-4 Seats-3 Shaped wood-2 **Total: 125**	Furniture components-27 Marquetry-7 Trailers-6 Seats-4 Burial caskets-3 **Total: 49**	Builders' joinery-39 Trailers-25 furniture components-23 Shaped wood-9 Frames of wood-6 Burial caskets-6 Pallets-5 Seats-3 Other wood articles-3 **Total: 124**	Furniture components-94 Burial caskets-53 Frames of wood-23 Builders' joinery-23 Wooden doors and windows-22 Lumber-21 Trailers-20 Prefabricated buildings-12 Pallets-11 Seats-6 **Total: 297**	Trailers-38 Burial caskets-36 prefabricated buildings-26 Builders' joinery-13 Lumber-10 **Total: 125**

Nova Scotia

Lumber-327 Plywood-240 Shaped wood-156 Wooden doors and windows-173 Builders' joinery-120 Frames of wood-81 Fibreboard-71 Furniture components-59 Prefabricated buildings-48 **Total: 1339**	Lumber-407 Plywood-352 Fiberboard-295 Wooden doors and windows-195 Builders' joinery-155 Frames of wood-153 Shaped wood-97 Furniture components-42 Other wood articles-22 Seats-20 **Total: 1778**	Roundwood-2929 Fiberboard-641 Lumber-414 Plywood-335 Builders' joinery-118 Wooden doors and windows-71 Shaped wood-62 Furniture components-53 Frames of wood-50 other wood articles-39 **Total: 4832**	Roundwood-4412 Lumber-653 Prefabricated buildings-481 Fibreboard-431 Builders' joinery-238 Plywood-212 Frames of wood-171 Furniture components-162 Trailers-107 Shaped wood-107 **Total: 7148**	Fiberboard-1376 Roundwood-962 Prefabricated buildings-469 Frames of wood-446 Lumber-436 Shaped wood-140 Wooden doors and windows-107 Furniture components-107 Other wood articles-64 Trailers-42 **Total: 4443**	Fibreboard-1376 Lumber-501 Prefabricated buildings-492 Frames of wood-412 Builders' joinery-157 Trailers-156 Plywood-110 Wooden doors and windows-87 Burial caskets-84 Shaped wood-74 **Total: 3538**

New Brunswick

Fibreboard-7863 Trailers-27 Furniture components-11 Lumber-10 Seats-4 Other wood articles -3 Burial caskets-2 **Total: 7923**	Furniture components-36 Trailers-23 Woodendoors and windows-14 Shaped wood-9 Burial caskets-7 Particle board-3 Builders' joinery-2 **Total: 97**	Other wood articles-124 Plywood-21 Wooden doors and windows-16 Furniture components-15 Builders' joinery-4 Frames of wood-2 Shaped wood-2 **Total: 187**	Frames of wood-75 Lumber-66 Trailers-42 Wooden doors and windows-30 Prefabricated buildings-26 Furniture components-25 Builders' joinery-21 Seats-12 Burial caskets-2 **Total: 303**	Prefabricated buildings-976 Plywood-94 Furniture components-51 Marquetry-48 Lumber-34 Wooden doors and windows-34 Frames of wood-31 Roundwood-20 Builders' joinery-18 Trailers-17 **Total: 1332**	Lumber-95 Frames of wood-43 Wooden doors and windows-41 Plywood-30 Builders' joinery-22 Prefabricated buildings-16 **Total: 250**

Atlantic Canada					
Fibreboard-7934 Lumber-337 Plywood-243 Wooden doors and windows-175 Shaped wood-156 Builders' joinery-125 Furniture components-112 Frames of wood-84 Prefabricated buildings-48 Trailers-43 **Total: 9352**	Lumber-411 Plywood-352 Fiberboard-295 Wooden doors and windows-209 Builders' joinery-157 Frames of wood-153 Furniture components-128 Shaped wood-108 Trailers-87 Seats-23 **Total: 2000**	Roundwood-2929 Fiberboard-641 Lumber-414 Plywood-356 Other wood articles-163 Builders' joinery-122 Furniture components-95 Wooden doors and windows-87 Shaped wood-64 Frames of wood-52 **Total: 5068**	Roundwood-4412 Lumber-719 Prefabricated buildings-507 Fiberboard-431 Builders' joinery-298 Frames of wood-252 Plywood-212 Furniture components-210 Trailers-174 Shaped wood-116 **Total: 7575**	Prefabricated buildings-1457 Fiberboard-1376 Roundwood-962 Frames of wood-500 Lumber-491 Furniture components-252 Shaped wood-140 Wooden doors and windows-163 Plywood-94 Trailers-79 **Total: 6072**	Fiberboard-1376 Lumber-606 Prefabricated buildings-534 Frames of wood-455 Trailers-194 Builders' joinery-192 Plywood-140 Wooden doors and windows-128 Burial caskets-120 Shaped wood-74 **Total: 3913**
Canada					
Lumber-30,903 Prefabricated buildings-3666 Plywood-3497 Frames of wood-3237 Builders' joinery-2374 Furniture components-1709 Wooden doors and windows-1047 Roundwood-771 Other wooden articles-593 Seats -569 **Total: 50,453**	Lumber-28,832 Frames of wood-3611 Prefabricated buildings-3320 Plywood-2564 Builders' joinery-2464 Furniture components-2322 Veneer-1408 Roundwood-1082 Seats-1028 Other wood articles-757 **Total: 50,443**	Lumber-41,720 Roundwood-5986 Prefabricated buildings-3503 Frames of wood-2958 Furniture components-2541 Plywood-2232 Veneer-1878 Builders' joinery-1880 Other wood articles-1830 Seats-1006 **Total: 68,561**	Lumber-43,582 Plywood-7066 Roundwood-7016 Prefabricated buildings-5102 Frames of wood-4787 Furniture components-3096 Builders' joinery-2254 Wooden doors and windows-1735 Veneer-1570 Other wood articles-1528 **Total: 81,777**	Lumber-45,873 Frames of wood-5064 Furniture components-4722 Roundwood-3901 Prefabricated buildings-5869 Wooden doors and windows-2025 Plywood-2035 Fiberboard-1376 Builders' joinery-1928 Other wood articles-1280 **Total: 77,722**	Lumber-43,670 Frames of wood-4760 Roundwood-3474 Furniture components-3304 Prefabricated buildings-3027 Builders' joinery-2370 Burial caskets-1585 Fiberboard-1376 Wooden doors and windows-1407 Plywood-1004 **Total: 68,202**

APPENDIX G

Exports to Germany by Province and by Product, 1992-1997 (000's of $)[26]					
Newfoundland					
1992	**1993**	**1994**	**1995**	**1996**	**1997**
0	Lumber-30 Burial caskets-27 **Total: 57**	0	0	0	Frames of wood-67 Builders' joinery-15 **Total: 82**
Nova Scotia					
Furniture components-494 Builders' joinery-47 Wooden doors and windows-26 Lumber-22 Prefabricated buildings-17 Shaped wood-4 **Total: 612**	Furniture components-734 Prefabricated buildings-144 Builders' joinery-70 Shaped wood-54 Lumber-45 Burial caskets-17 **Total: 1069**	Prefabricated buildings-256 Shaped wood-137 Lumber-127 Roundwood-91 furniture components-11 Builders' joinery-8 Frames of wood-8 **Total: 637**	Shaped wood-185 Prefabricated buildings-145 Particleboard-121 Lumber-77 Builders' joinery-69 Roundwood-62 Furniture components-31 Fuelwood-27 **Total: 721**	Prefabricated buildings-827 Lumber-226 Furniture components-147 Roundwood-144 Builders' joinery-116 Frames of wood-79 **Total: 1542**	Prefabricated buildings-1279 Shaped wood-355 Builders' joinery-347 Lumber-285 Roundwood-26 Fibreboard-24 Furniture components-14 **Total: 2333**
New Brunswick					
Lumber-244 Other wood articles-57 Prefabricated buildings-47 builders' joinery-41 Furniture components-33 Pallets-2 **Total: 426**	Lumber-41 Burial caskets-4 **Total: 45**	Lumber-562 **Total: 562**	Lumber-1160 Prefabricated buildings-288 Other wood articles-70 Shaped wood-9 Furniture components-5 **Total: 1533**	Lumber-1694 Prefabricated buildings-365 Builders' joinery-202 Plywood-169 Shaped wood-30 **Total: 2463**	Lumber-1937 Prefabricated buildings-520 Builders' joinery-353 Roundwood-97 Shaped wood-96 Other wood articles-17 Frames of wood-13 **Total: 3036**
Atlantic Canada					
Furniture components-527 Lumber-266 Builders' joinery-88 Prefabricated buildings-64 Other wood articles-57 Wooden doors and windows-26 Pallets-2 **Total: 1038**	Furniture components-734 Prefabricated buildings-144 Lumber-116 Builders' joinery-70 Shaped wood-54 Burial caskets-48 **Total: 1171**	Lumber-689 Prefabricated buildings-256 Shaped wood-137 Roundwood-91 Furniture components-11 Builders' joinery-8 Frames of wood-8 **Total: 1199**	Lumber-1237 Prefabricated buildings-433 Shaped wood-194 Particleboard-121 Other wood articles-70 Builders' joinery-69 Roundwood-62 Furniture components-31 Fuelwood-27 Frames of wood-5 **Total: 2254**	Lumber-1920 Prefabricated buildings-1192 Builders' joinery-318 Plywood-169 Furniture components-147 Roundwood-144 Frames of wood-79 Shaped wood-30 **Total: 4005**	Lumber-2222 Prefabricated buildings-1799 Builders' joinery -715 Shaped wood-451 Roundwood-123 Frames of wood-80 Fibreboard-24 Other articles of wood-17 Furniture components-14 **Total: 5451**

Canada					
Lumber-80,976 Plywood-17,628 Veneer-60710 Prefabricated buildings-6000 Furniture components-3730 Builders' joinery-3127 Shaped wood-1201 Burial caskets-543 Other wood articles-365 Fibreboard-305 Total: 120,985	Lumber-97,117 Plywood-16,461 Veneer-7892 Prefabricated buildings-7110 Builders' joinery-4337 Furniture components-3625 Shaped wood-1022 Burial caskets-1019 Fibreboard-499 Wooden doors and windows-402 Total: 140,862	Lumber-141,146 Plywood-22,685 Veneer-10,130 Builders' joinery-7579 Prefabricated buildings-6860 Shaped wood-1408 Furniture components-1280 Frames of wood-1181 Burial caskets-581 Wooden doors and windows-577 Total: 194,855	Lumber-119,453 Plywood-43,114 Builders' joinery-11,867 Veneer-10,240 Prefabricated buildings-8847 Furniture components-5617 Shaped wood-2093 Fibreboard-1789 Burial caskets-1312 Wooden doors and windows-1203 Total: 208,636	Lumber-99,229 Plywood -15,595 Prefabricated buildings-14,524 Furniture components-12,484 Veneer-8262 Builders' joinery-5698 Wooden doors and windows-2072 Other wood articles-1182 Burial caskets-1176 Frames of wood-1039 Total: 163,435	Lumber-125,432 Plywood-40,239 Prefabricated buildings-17,156 Veneer-8633 Builders' joinery-5858 Furniture components-2753 Wooden doors and windows-2709 Frames of wood-1854 Burial caskets-1841 Shaped wood-1171 Total: 210,157

SELECTED GERMAN MARKETS

The German Prefabricated Buildings Sector

A prefabricated wood-frame house is a relatively new product in Germany. The introduction of any new product on any market can be expensive, therefore partnerships between exporters and local distributors are advised. Exporters will need an active strategy in selecting the right candidate, and in training and supporting the distributor, especially in formerly communist East Germany where some distributors may not be accustomed with the rigours of the free market.

Import duty on a prefabricated house runs up to 5.3% and the value-added tax in Germany is 15%. Building codes in Germany require the following documents:

- Proof of building safety
- Noise insulation and fire protection
- Building design and Building description
- Energy Saving Certificate

The German Home Improvement Products and Services Sector

In Germany, there were 560 franchise systems represented by over 24 000 franchises in 1996. The franchise market was worth $16.6 billion in that same year, with growth in the near term forecasted to be in the range of 5% to 10% annually. Non-tariff barriers include well-entrenched competition, name recognition, pervasive labour regulations, high salary costs and mandatory product testing. In Germany, products must be approved by the DIN, the German Standards Authority and the TVV, the Technical Testing Association. Trade shows play a great role in the marketing of products to the large chains of home improvement superstores.[27]

APPENDIX H

Exports to Japan by Province and by Product, 1992-1997 (000's of $)[28]					
Newfoundland					
1992	**1993**	**1994**	**1995**	**1996**	**1997**
0	0	0	Prefabricated buildings-144	Furniture components-20	0
Prince Edward Island					
0	0	0	0	0	Prefabricated buildings-419 Furniture components-12 **Total: 431**
Nova Scotia					
Prefabricated buildings-369	Prefabricated buildings-207 Burial caskets-85 Other wood articles-2 **Total: 294**	Prefabricated buildings- 89 Lumber-8 Builders' joinery-4 Plywood-2 **Total: 104**	Prefabricated buildings- 379 Seats-46 Trailers-8 Wooden frames-3 **Total: 436**	Prefabricated buildings-698 Seats-30 Lumber-21 Shaped wood-12 Wooden doors and windows-3 **Total: 766**	Prefabricated buildings-146 Fibreboard-70 Frames of wood-22 **Total: 238**
New Brunswick					
Shaped wood-44 Veneer-31 **Total: 75**	0	Lumber-61	Prefabricated buildings-72 Lumber-37 Shaped wood-35 Builders' joinery-20 **Total: 165**	Prefabricated buildings-1400 Furniture components-114 Lumber-38 Frames of wood-15 **Total: 1568**	Builders' joinery-215 Prefabricated buildings-59 Lumber-35 Furniture components-24 **Total: 335**
Atlantic Canada					
Prefabricated buildings-369 Shaped wood-44 Veneer-31 **Total: 444**	Prefabricated buildings-207 Burial caskets-85 other wood articles-2 **Total: 294**	Prefabricated buildings-89 Lumber-69 builders' joinery-4 Plywood-2 **Total: 165**	Prefabricated buildings-595 Seats-46 Lumber-37 Shaped wood-35 Builders' joinery-20 Trailers-8 Wooden frames-3 **Total: 745**	Prefabricated buildings-2098 Furniture components-134 Lumber-59 Seats-30 Frames of wood-15 Shaped wood-12 Wooden doors and windows-3 **Total: 2354**	Prefabricated buildings-624 Builders' joinery-215 Fibreboard-70 Furniture components-36 Lumber-35 Frames of wood-22 **Total: 1004**
Canada					
Lumber-1,332,636 Roundwood-124,831 Fuelwood-92,745 Plywood-20,988 Prefabricated buildings-19,860 Particleboard-6534 Fibreboard-3337 Furniture components-3107 Builders' joinery-2966 Veneer-2101 **Total: 1,614,782**	Lumber-2,065,010 Roundwood-116,523 Fuelwood-81,579 Plywood-30,800 Prefabricated buildings-26,775 Particleboard-18,341 Furniture components-13,745 Builders' joinery-7873 Fibreboard-5390 Veneer-3089 **Total: 2,375,294**	Lumber-2,357,970 Fuelwood-73,126 Roundwood-63,965 Plywood-62,555 Prefabricated buildings-54,898 Particleboard-25,911 Builders' joinery-11,683 furniture components-7368 Fibreboard-6838 Veneer-5672 **Total: 2,679,341**	Lumber-2,632,911 Prefabricated buildings-131,524 Plywood-121,908 Fuelwood-59,519 Particleboard-40,920 Roundwood-31,058 Builders' joinery-29,061 Furniture components-14,020 Frames of wood-11,820 Veneer-11,175 **Total: 3,094,984**	Lumber-2,601,699 Prefabricated buildings-182,062 Plywood-167,446 Particleboard-66,268 Fuelwood-53,665 Builders' joinery-47,649 Frames of wood-24,135 Roundwood-22,570 Veneer-19,169 Furniture components-15,142 **Total: 3,214,317**	Lumber-2,272,566 Prefabricated buildings-178,934 Plywood-130,315 Builders' joinery-60,280 Particleboard-59,640 Fuelwood-48,627 Frames of wood-22,468 Furniture components-18,263 Roundwood-14,004 Veneer-11,287 **Total: 2,832,599**

Japanese Imported Housing:

The government of Japan's April 1995 emergency economic package to respond to the rapid appreciation of the Japanese yen included a plan to promote imported housing. The plan includes expenditures of over $US 4 million as well as an investment of $U.S. 221 million toward the Japan External Trade Organization (JETRO) for it to manage imported housing parks and imported housing access marts.

The residential housing market occupies an estimated $U.S. 46 billion. Because of relatively weak economic conditions in Japan over the past few years, the building sector has been declining. However, imported housing especially from North America has remained strong primarily because of the relatively low cost of producing wooden platform frame construction, but also because of the quality and desirability of North American products, the government of Japan's active promotion of imported housing in order to decrease the country's large trade surplus, a broad government initiative in Japan to deregulate the construction industry and strong marketing efforts by North American suppliers and manufacturers.

There are differing degrees of value-added depending on the method of construction:

- Traditional post-and-beam houses are more likely to use only rough wood that has been milled in Japan. These houses are also less likely to have higher value-added wood products such as windows, doors and kitchen cabinets.

- The 2x4 method, also referred to as the wooden platform frame construction, is gaining ground on the traditional method because of its greater earthquake resistance, low cost, energy savings and soundproofing.

In attempting to sell imported homes in Japan, it is suggested that North American companies focus on price and delivery as competitive factors, hire staff who are able to speak Japanese and understand Japanese culture, translate all instruction manuals into Japanese and decide whether or not to purchase liability insurance to protect the importer from Japan's Product Liability Law.[29]

Differences Between North American and Japanese Construction Techniques		
	American	**Japanese**
Panel sizes	4x8 feet	3x6 feet
House design methods	Variability in room sizes	Fixed drafting paper grid
Spacing of studs	Spaced 16 inches apart	Spaced 18 inches apart
Measuring	Surface-to-surface	Center-of-beam to center-of beam
Tools	Power tools	Hand tools

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THE WOOD INDUSTRY IN ATLANTIC CANADA: A FOCUS ON VALUE-ADDED

PART 6: NEEDS, CHALLENGES AND TARGETS

ATLANTIC CANADA OPPORTUNITIES AGENCY *NOVEMBER 1998*

TABLE OF CONTENTS

EXECUTIVE SUMMARY

INTRODUCTION

This paper is the sixth and last in a six-part series prepared by the Atlantic Canada Opportunities Agency (ACOA) in consultation with the governments of the four Atlantic provinces on the economic benefits and opportunities that exist in the value-added wood products industry in the Atlantic provinces. While maintaining a focus on the value-added aspects of this sector, the series has examined the following aspects of the industry: State of the Resource; State of the Industry; Productivity and Economic Benefits; Products and Markets; Trade and Regulation; and Needs, Challenges and Targets.

This report seeks to provide a strategic direction for the wood products industry in Atlantic Canada. It establishes broad industry targets for value-added, shipments, wages and employment by focussing on specific elements of the first five parts. It also identifies the main challenges of the industry in each province and the needs arising from the targets and the challenges.

SUMMARY

The over-riding target for Atlantic Canada's wood manufacturing industry consists of increasing the region's share of value-added in Canada's wood industry. While the Atlantic provinces produced approximately 10% of the nation's raw wood volume, shipments, wages and value-added only represented 4% of their respective national average in 1995. This disparity identifies a potential for adding value to the current volume of wood harvested that may approach a 150% increase. In light of this targets, the major challenges facing the industry are an allocation of resources between the various sectors of the forest industry based on the value-potential of the wood resource, developing new value-added products in the intermediate or final phases of processing, diversifying into new and existing export markets, and assuring that smaller wood manufacturers have the same opportunities to benefit from the further development of the industry.

Newfoundland is in need of viable access to fibre sources in Labrador and external markets, increased export capabilities, more stable growth in shipments and productivity levels in line with the rest of Atlantic Canada. Prince Edward Island requires a market mechanism to ensure better utilization of the resource, more stable growth in shipments and a more diversified export market through improved export capabilities and training programs that focus on business skills and industrial woodworking. Secondary manufacturers in Nova Scotia are facing a need for more imports of roundwood, and the industry could benefit from a strategic use of the information gathered in the Registry of Buyers as well as a more balanced allocation of Crown land. The secondary wood industry in New Brunswick may also be requiring increased imports of roundwood, a more diversified export product base and export market. The secondary wood industry in Atlantic Canada is faced with the need for increased access to external fibre sources, an industry-wide product development network, a series of small strategic alliances focussing on certain geographic and niche product markets, a comprehensive education and training program in each province and a increased emphasis on business partnering for exports and product development.

PART 6

NEEDS, CHALLENGES AND TARGETS

1. RECAPITULATION

1.1 Methodology and Additional Research: The wood industry in Atlantic Canada is just beginning to grow beyond the dominance of dimension lumber and other primary products. For this reason, public information on the industry is often incomplete or not available at a detailed level for provincial analysis. For instance, statistical sources for the wood industry include primary products such as lumber and poles. While these products have a value-added component, it is much lower than it is for engineered building components, millwork and or cabinets and furniture or furniture components. As the industry expands and becomes better understood, these distinctions will become clearer and better defined.

ACOA's research on the wood industry in Atlantic Canada has revealed the following areas where further research is needed to better measure the performance of the industry in the region:

- The vulnerabilities and efficiencies that result from the Maritime's small area of highly concentrated forest land;
- The volume of wood leaving private woodlots from the Maritime provinces;
- The cost efficiency of using timber from Labrador;
- The efficiency of labour and capital utilization in wood manufacturing;
- The profitability of the wood industry;
- The cost structure and cost competitiveness of Atlantic Canada's wood industry;
- The level of equipment and technology used and required in Atlantic Canada's wood industry;
- The linkages between primary processors, secondary manufacturers and intermediaries in the industry; and

- The productivity of wood industries in other provinces such as Québec and British Columbia and other countries such as the United States, Denmark, Italy, Indonesia and Brazil.

1.2 Main Conclusions of the Report: Based on a thorough analysis of the publicly available information on the forest resource and the wood products industry, the main conclusions of this report are the following:

PART 1: State of the Resource

The Atlantic forest industry has benefited from a combination of factors which include a high level of private ownership and competitive stumpage fees. Harvesting is approaching maximum levels in the Atlantic provinces for the near to medium terms, especially in the case of softwood. The health of the value-added wood products sector in the Atlantic region is not completely dependant on the sustainability of the forest resource. Many secondary manufacturers in the region import wood resources from outside the region. Given the level of harvesting in the region, sustained growth in Atlantic Canada's wood products industry will rely on better access to external fibre sources and better use of existing fibre source.

Targets:
- Better access to external fibre sources
- Better use of the existing fibre sources

PART 2: State of the Industry

Although growth in shipments and exports has been stronger in Atlantic Canada than in Canada as a whole, the secondary wood products industry in the Atlantic region has a very low value-added component compared to the rest of the country. While Atlantic Canada produces approximately 10% of the national Annual Allowable Cut, value-added in the wood industries accounted for only 4% of value-added in Canada in 1995. During that same year, wages and salaries in Atlantic Canada account for only 4% of national wages and salaries. Atlantic Canada has 12% of establishments in Canada, and only 6% of the employees. This works out to an average of 11 employees per establishment in Atlantic Canada, while the national average is 21 employees. In New Brunswick, where the proportion of sawmills is lowest and the proportion of secondary manufacturers is the highest, the number of employees per establishment is exactly the same as that of Canada. With regards to education and training in the wood industries, the Atlantic provinces appear to have difficulty in retaining forestry, despite strong programs in universities, community colleges and professional associations. Woodworking graduates seem to be better able to find employment in Atlantic Canada.

Targets:

- Increasing the Atlantic region's share of shipments, wages and value-added from 4% to better reflect the fact that the region produces 10% of Canada's total wood volume
- Better retention of university and college graduates in the field of forestry

PART 3: Productivity and Economic Benefits

The wood products industry in Atlantic Canada has a significant economic impact on the region, especially in terms of employment and economic spinoffs generated by shipments and demand in the market. From 1990 to 1995, the wood industry created 10.7 jobs per $1 million in shipments, while the paper and allied products industry created only 4.6 jobs per $1 million in shipments. The gross production multiplier for the wood industry is considerably higher in Nova Scotia than it is for the paper and allied products sector. In New Brunswick, the gross production multipliers for both industries are equivalent. The secondary wood products industry is relatively steady and consistent, which allows for sound planning and investment decisions.

Although Atlantic Canadian productivity ratios expressed in terms of GDP per employee, shipments per establishments and shipments per wages were below national averages between 1990 and 1995, the region's wood products industry has considerably increased its productivity levels over that same period. New Brunswick is by far the leader in the three productivity ratios, while Nova Scotia and Prince Edward Island experienced the strongest growth over the five year period. The province of Newfoundland and Labrador, which lags behind the other three provinces, lost ground on all three productivity ratios.

Targets:

- Improving productivity ratios by increasing shipments and exports, wages and profits, and GDP and value-added through a more efficient use of labour, capital, raw materials and growing demand in specific markets

PART 4: Products and Markets

Atlantic Canada's wood products industry has become heavily reliant on the American market for exports, rising from 77.9% of exports to 96.2% of exports over the 1992-1997 period. This means that markets conditions, including the exchange rate of the Canadian dollar against the American dollar, interest rates, building starts, the various end uses of lumber and general consumer preferences in the United States are especially important for the wood industry of the Atlantic region. Such a heavy concentration on the American market could place Atlantic Canada's wood products industry in a difficult position when the American economy or general demand for wood products in the United States weakens.

Atlantic Canada also has a heavy preponderance of its exports in lumber. The development of more intermediate and final stage value-added products including engineered building components, millwork such as doors, windows and flooring, and cabinets and furniture components could allow the Atlantic provinces to develop new markets in the rest of Canada, in other parts of the United States, and in other countries such as Mexico, Japan, Germany, France and the United Kingdom.

Targets:
- Market diversification
- Product diversification

PART 5: Trade and Regulation

Canada is the world's largest exporter of forest products. In 1995, forest products were the single greatest contributor to the country's balance of trade with a surplus of $35 billion. The industry is heavily oriented towards the production of primary products, with 80% of total exports in products such as market pulp, newsprint, writing paper, softwood lumber and wood-based panels.

With the implementation of the World Trade Agreement, the North American Free Trade Agreement, and the Canada-United States Bilateral Agreement on Softwood Lumber, significant markets are opening up in North America, Europe and Asia for secondary wood manufacturers in Atlantic Canada. Given the relatively small size of most companies in Atlantic Canada's wood products industry, entrepreneurs interested in pursuing export opportunities may have to either increase the size of their company or enter into export business networks with other small companies from the region and beyond. From 1992 to 1997, exports from Atlantic Canada experienced significant growth in the American, German and Japanese markets, while trade with the United Kingdom and France fell sharply. Little or no trade was reported from Atlantic Canada to Mexico.

Targets:
- Increase export trade from each province in Atlantic Canada

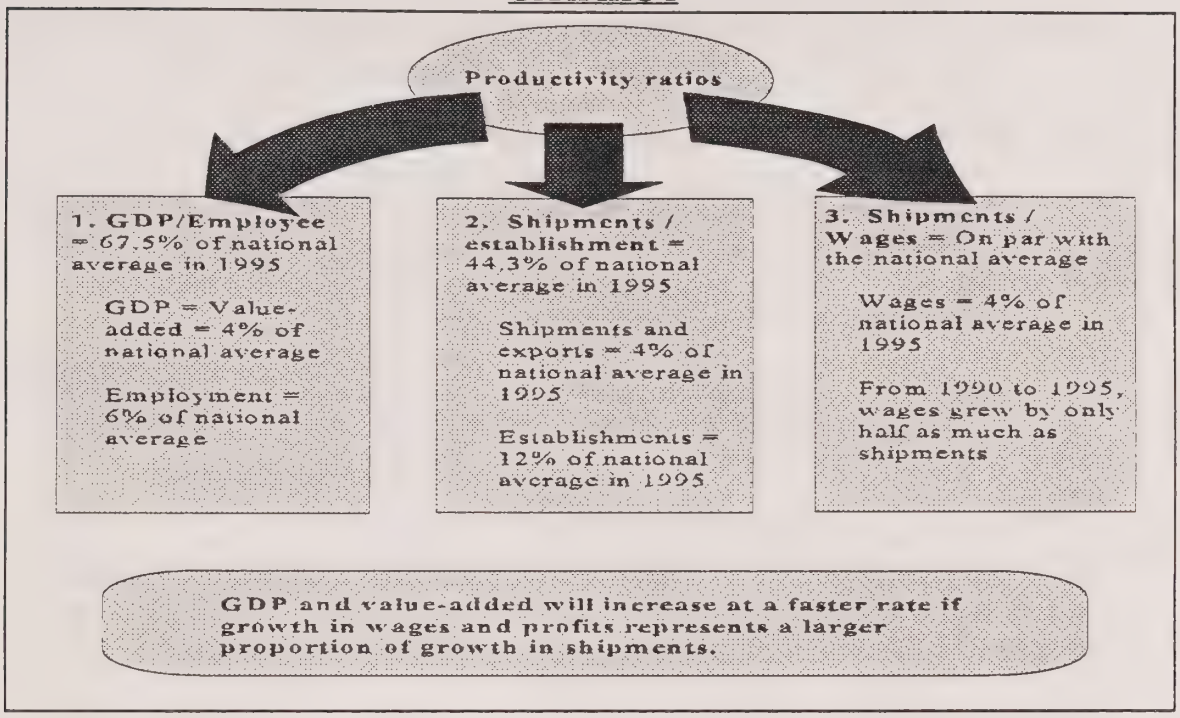
2. TARGETS

Based on the information contained in this report, the over-riding target for Atlantic Canada wood manufacturing industry consists of increasing the region's share of value-added in Canada's wood industry. While Atlantic Canada produces approximately 10% of the nation's wood volume, shipments, wages and value-added each only represented 4% of their respective national average in 1995.

At $29,315 per employee, Atlantic Canada's GDP productivity ratio was only slightly more than two thirds of the national average in 1995 which stood at $43,454 per employee. The ratios ranged from $15,957 per employee in Newfoundland to

$31,785 per employee in New Brunswick. In order to increase labour productivity , the secondary wood industry in Atlantic Canada must focus on fibre utilization, technology application, product development, market access and the relationship between industry structure, employment, wages and profitability.

GRAPHIC 1



Boosting shipments, specifically the value of shipments, is the key element to increasing value-added in the sector. However, wages and salaries must grow at a faster rate in relation to growth in shipment. From 1990 to 1995 wages only increased by half a much as shipments. In order for the productivity ratio to improve, GDP growth should be higher than employment growth and growth in shipments and wages should be more closely linked. A similar argument could be made for profits however there is not sufficient public data available to demonstrate the case.

3. CHALLENGES

In the context of this paper, a challenge will be defined as a part of the industry which is impeding the improved performance of the industry. Some of the challenges facing the wood products industry in Atlantic Canada are the following:

- The allocation of resources between the wood products sector and paper and allied products sector based on the value potential and educating private woodlot owners and harvesters on the value of certain species;
- Accessing fibre sources from external markets;
- Developing new value-added products in the intermediate and final phases of processing;
- Diversifying into new and existing export markets; and
- Assuring that existing large and small manufacturers in each Atlantic province have similar opportunities to benefit from the further development of the industry.

4. NEEDS

For the purposes of this report, needs will be defined as something missing from the industry in order for it to reach performance targets and overcome challenges in the business environment.

Newfoundland:

- Improved fibre availability
- Adjustments to the industry structure
- More stable growth in shipments
- Increased export capabilities for the sawmills and wood manufacturers of Newfoundland
- Productivity levels in line with the other three Atlantic provinces

Prince Edward Island:

- A market mechanism to ensure a better utilization of the 20% of P.E.I. wood used for fuelwood and 40% leaving the Island for mills outside the province
- More stable growth in shipments
- Improved export capabilities for P.E.I. manufacturers, including a mechanism for product and market information transfer
- More diversified export products given that lumber accounted for 50% of exports in every year from 1992 to 1997 except for 1994
- Training programs that focus on entrepreneur training, business skills, and skilled labour training in industrial woodworking

Nova Scotia:

- Increased access to existing fibre sources for secondary manufacturers along with an increase in imports of roundwood
- Strategic use of information gathered by the Registry to encourage value-added manufacturing
- More stable employment and shipment levels
- More diversified foreign export markets

New Brunswick:

- Increased imports of roundwood from external markets for secondary manufacturers
- A more diversified export product base
- A more diversified export market

Atlantic Canada:

- **Increased access to existing and external fibre markets:** Mechanisms may have to be in place so that more of the existing fibre source can be directed to secondary manufacturers.

- **Product development network:** Taking into consideration the relatively small size of establishments in the Atlantic region and the large investments required to develop innovative wood products, cooperation at the industry level is needed to diversify its export product base.

- **Export market networks:** The small size of establishments and the substantial investments in time and money needed to establish reliable export markets will require new structures to take advantage of a growing demand for wood products around the world.

- **Education and training program:** A comprehensive education and training program is needed to serve all four Atlantic provinces.

- The value of business associations in the development of skills, products and markets needs to be made clear to industry and government.